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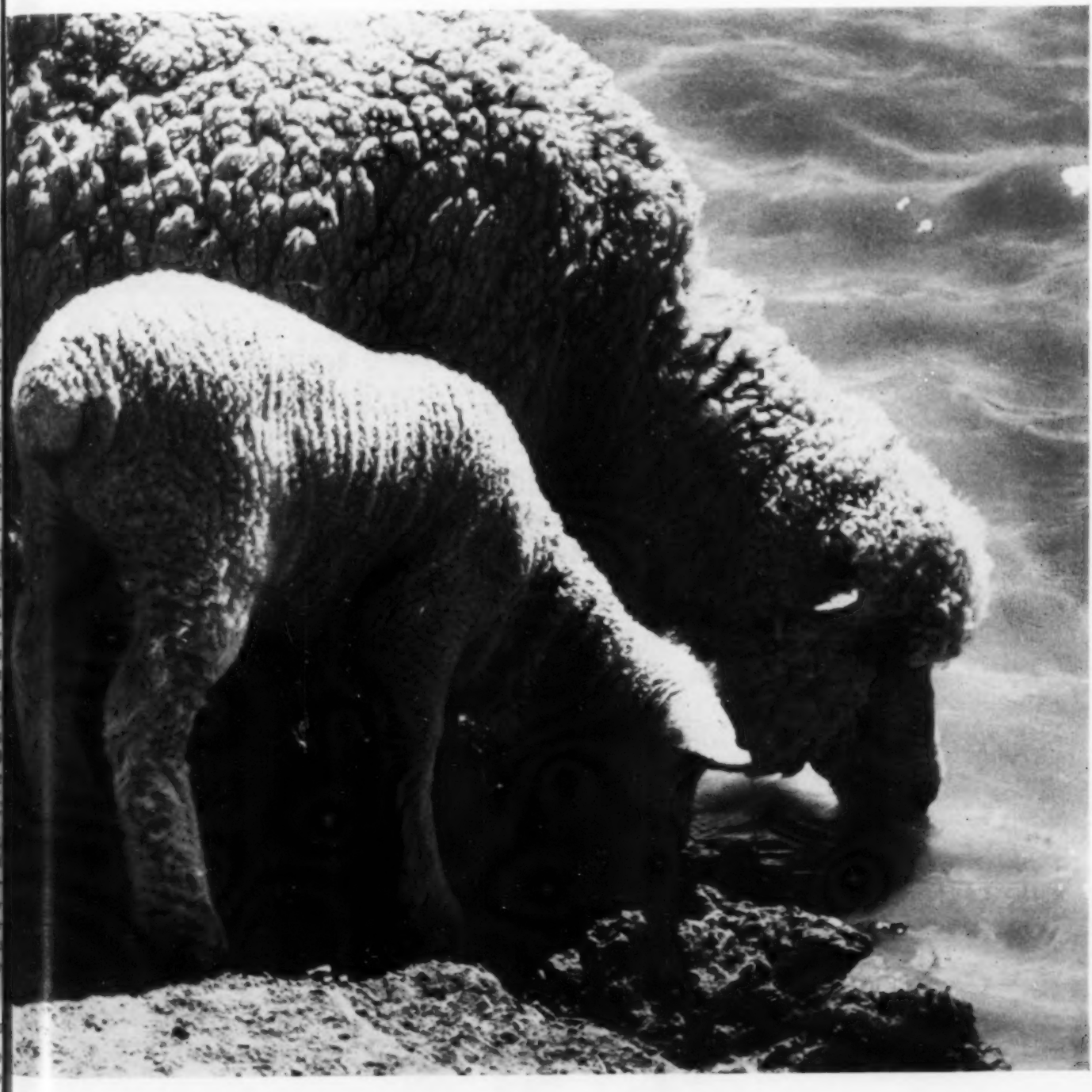

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Photograph by RICHARD HARRINGTON

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St. Hilaire Mountain from Fort Chambly, from the painting by Lieutenant Terrick Hamilton. C.S.L.

The Richelieu, Historic Water-way of Eastern Canada

by W. E. GREENING

FEW WATER-WAYS in Eastern Canada have more historic interest and significance than the Richelieu River. Although its length is comparatively short — about sixty miles from its source at the northern end of Lake Champlain to the point where its waters mingle with those of the St. Lawrence River at Sorel — yet almost every mile of its course has close and intimate associations with some eventful chapter of Canada's story. This is particularly true of the military field. Battles were fought near its banks in the eighteenth century which were to have a decisive influence on the whole future development of Canada and the United States.

If one glances at a map of this region of the Province of Quebec, it becomes easy to see why the Richelieu had such a vital military and strategic importance in the early days of New France in the seventeenth century. From the very start of settlement, this river provided the shortest and most convenient means of communication between the French communities in the St. Lawrence River area and Lake Champlain and the English and Dutch colonies to the south in New England and along the Hudson River. And it also furnished an avenue along which the hostile Iroquois tribes in what is today New York State could launch attacks and raids on Ville Marie and the other isolated French outposts in New France.

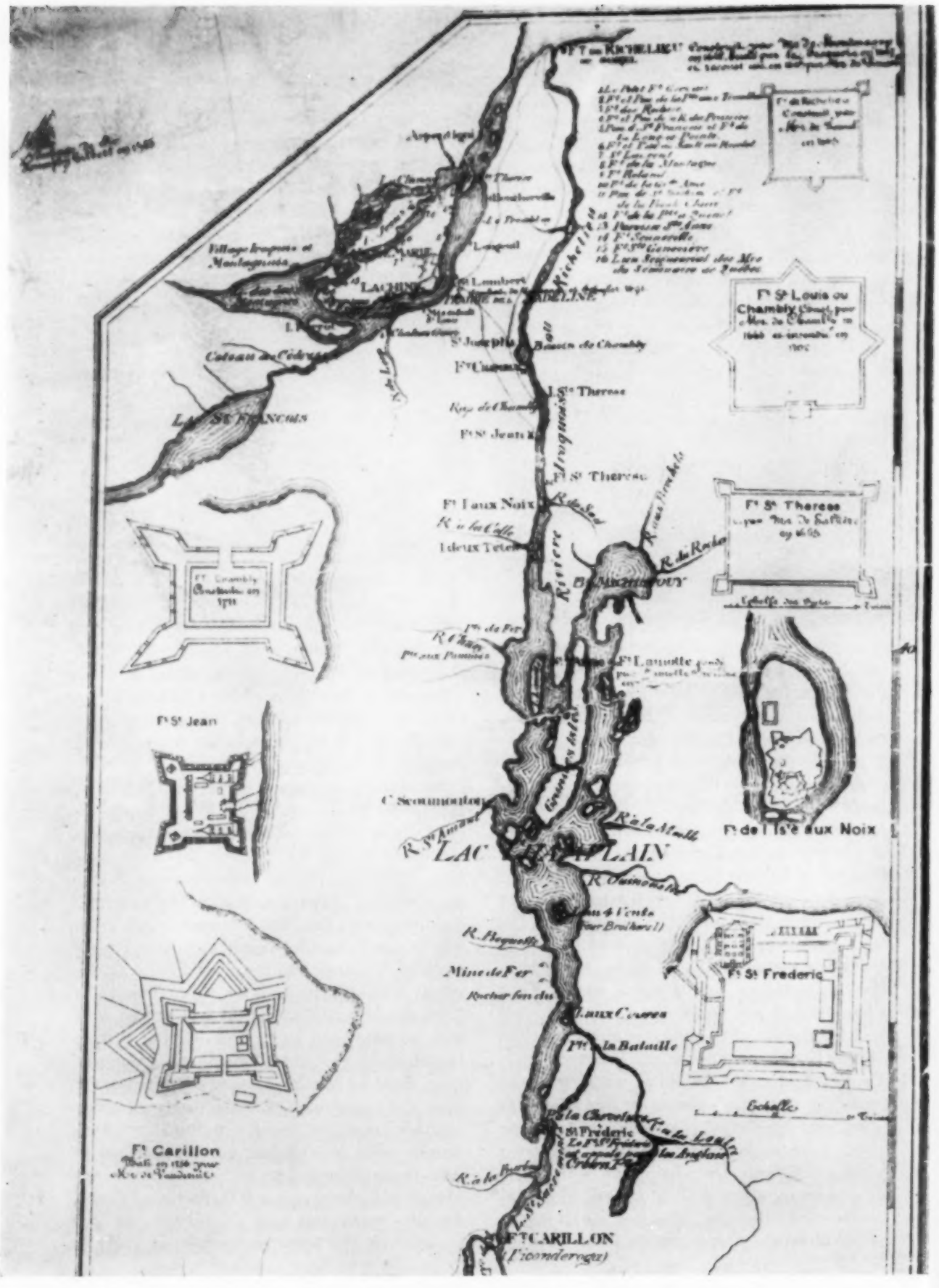
It did not take the French long after they had established their regime firmly in the valley of the St. Lawrence to grasp the full significance of these strategic factors. In 1642, soon after the founding of Ville Marie, as Montreal was first called, Paul de Chomedy, Sieur de Maisonneuve, together with a band of one hundred men, erected a small fort at the junction of the St. Lawrence and Richelieu Rivers[1]. According to contemporary accounts, this was a simple and unimposing wooden affair with a palisade of pine logs enclosing a chapel and barracks. It was only used by the French for two or three years and then was abandoned and afterwards burnt by a roving band of Iroquois.

As the farms and the seigniories began to spread along the river on Montreal Island, it soon became apparent that some effective system of protection would have to be organized against the Iroquois raids, which by the middle of the century had become so serious that they were threatening the whole future of the colony. The tribesmen made life terrible for the settlers, pillaging and burning farms and carrying off their residents as prisoners for torture. Finally, in 1663, after New France had come under the direct control of the French Crown, the government in Paris decided to make efforts to provide the colony with an adequate system of defence. Colbert, the great minister of Louis the Fourteenth, sent out to Quebec twenty companies of one of the noted French regiments of the period, the Carignan, which had been engaged in fighting against the Turks in Hungary. One of the first tasks assigned to its officers upon their arrival in Canada was the construction of a line of forts extending along the whole course of the Richelieu River from the St. Lawrence to the north end of Lake Champlain. A new and larger wooden fort[2] was built on the site of the first one at the junction of the Richelieu and the St. Lawrence by a Captain Pierre de Sorel, after whom the busy industrial city which stands on this site today is named. Another of the officers of this regiment, Captain Jacques de Chambly, erected a second fort[3] about forty-five miles to the south at a point on a line with Montreal, where the course of the Richelieu after passing through a series of rapids widens out to form Chambly Basin. Still farther to the south, about midway between the present-day communities of Chambly and St. Jean, another officer, Jean de Sallières, erected a third fort similar in its plan to the other two, called Fort Ste. Thérèse. The most southerly of this chain, called Fort Ste. Anne, was placed by the French authorities on on the Île La-Motte, an island at the north end of Lake Champlain close to the outlet of the Richelieu in what is today the American State of Vermont.

Although many historical details are lacking concerning the planning and construction of these forts, the features of the one built at Chambly in 1665 may be taken as typical of the group as a whole. It was built of wood in the form of a square with palisades about fifteen feet high. Inside the walls were barracks, a chapel, a warehouse for the storage of arms and provisions, and a house where the commandant lived and had his offices. These forts were also used as places of refuge for the local settlers and their families and livestock during the frequent Indian raids and during other times of peril.

Several of the officers of the Carignan Regiment, including de Chambly, took up seigniories from the French Crown along the river; but the progress of settlement in this region of New France was slow, because the construction of this line of defense by no means put an end to the Iroquois menace. The raids from the south continued during the entire seventeenth century. Towards 1700 the situation became still more critical when the British Government, operating from the New England colonies, began to use Lake Champlain as a base for attacks on Montreal and the other French settlements with the Iroquois as allies. Finally in 1702, the Iroquois burned the fort at Chambly and several years later, in 1709, the French Government decided to abandon it as a military base. But this decision aroused a strong protest among the residents of nearby Montreal, which by this time had become a fair-sized community. The Montrealers were determined to have some effective protection at this point along the Richelieu against further English and Iroquois incursions and they began to put pressure on the home government in Paris to

[1]Fort Richelieu. [2]Fort Sorel. [3]Fort Chambly.

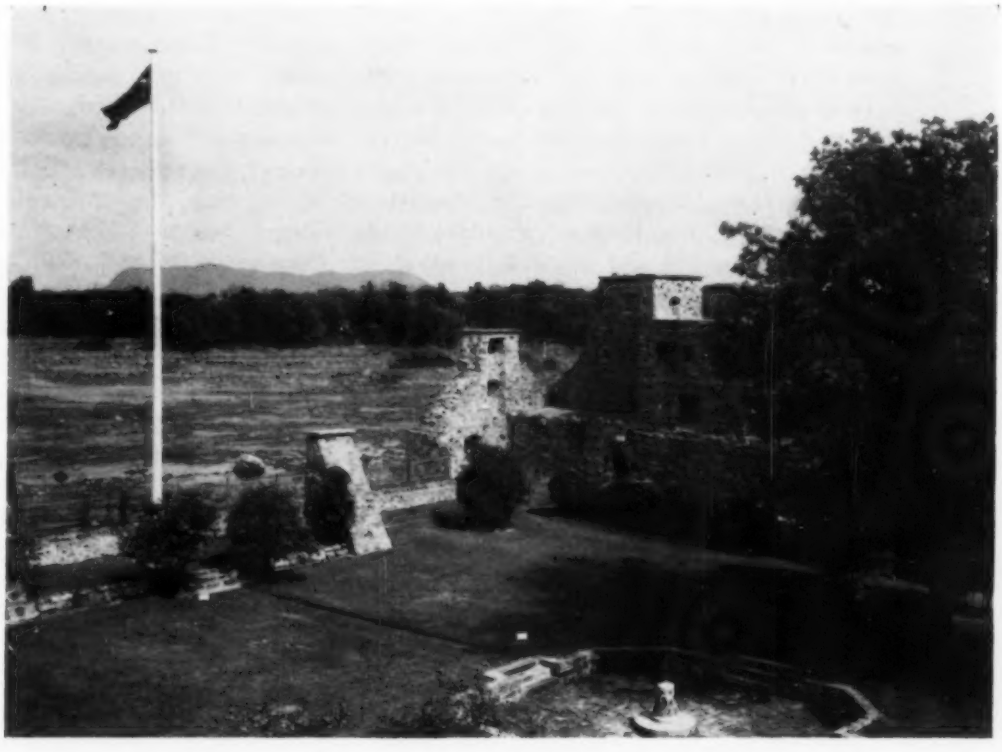


From the map of New France by P. M. A. Genest, about 1760, showing the forts along the Richelieu River.
Public Archives of Canada

have the fort at Chambly rebuilt on a large scale. Unwilling to wait for the slow-moving officials in France to act, they began work on the construction of the new fort themselves, hauling stone across the twenty-mile stretch between the St. Lawrence and the Richelieu. By 1711 this new stronghold, a very imposing structure, was completed to their great joy and was given the name of Fort Pontchartrain in honour of the contemporary French Minister of the Marine, but the name Chambly has clung to it through the centuries.

During the period after 1714 there was a lull in the long-drawn-out military struggle between England and France and for a few years things were fairly quiet along this frontier. By this time, the fort on Île La-Motte in Lake Champlain had certainly been abandoned, and Fort Ste. Thérèse near St. Jean fell into disuse early in the eighteenth century. But hostilities in this region flared up again during the War of the Austrian Succession between 1744 and 1748, in which England and France were again ranged on opposing sides. In this period the French Government decided to build a new fort at St. Jean. From contemporary accounts, it would appear that this stronghold, although built of wood, was a large piece of military architecture, square in form and capable of holding a garrison of 200 men. It also served as a place of storage for the munitions and supplies which the French Government was sending southwards to the new forts which were in the course of construction at the southern end of Lake Champlain.

A few years later, in 1757, the Richelieu again became the centre of important military events when the final and decisive chapter began in the contest between the regimes in London and Paris for the mastery of North America. Soon after the beginning of hostilities, the French Government constructed yet another fort on the Île-aux-Noix in the centre of the Richelieu River about fifteen miles south of St. Jean and not far from the present international boundary. This island was well suited for defense against attack since its shores were marshy. Three years later, in 1760, after the fall of Quebec and when the French had been compelled to abandon Forts Carillon and St. Frederic on Lake Champlain in the face of the British advance, they decided to make a last stand in defense of Montreal on the Île-aux-Noix and at the two other remaining forts on the Richelieu. At this time the stronghold was under the command of the distinguished Count Louis de Bougainville, who was afterwards to win world fame as an explorer of the Pacific



The north-east bastion and magazine at Fort Chambly. The Richelieu rapids and St. Hilaire Mountain may be seen in the background.
Canadian Government Travel Bureau

Fort Lennox on Ile-aux-Noix. The fort in its present form was reconstructed by British military engineers in the early 1820s. Canadian Government Travel Bureau

and as a circumnavigator and who was aide-de-camp to Montcalm. In the summer of 1760 a considerable British force under the command of Colonel Havilland advanced northwards from Crown Point on Lake Champlain in the direction of the Richelieu and Montreal. Upon arrival at the Île-aux-Noix, Havilland laid siege to the fort and was able to effect a landing there. Bougainville, however, succeeded in slipping away under cover of darkness. Soon afterwards Havilland's force was able to capture the remaining forts along the river at St. Jean and Chambly without much difficulty and make a junction with the British armies of Generals Amherst and Murray just outside of Montreal. These military operations sealed the fate of this city and forced the surrender of Montreal by Vaudreuil and the capitulation of the French in Canada.

After Canada came under British rule in 1763, the forts along the Richelieu were neglected for a time by the British authorities, but it was not long before this whole region of Lower Canada came into great prominence again with the outbreak of the American Revolution in 1775. Again it formed the route for an invasion of Canada, but this time by the new armies of the American Republic. In the summer of 1775, at the very outset of the conflict, Benedict Arnold, operating from Lake Champlain, by a bold move was able to sail northwards with a flotilla and capture the feebly defended fort at St. Jean, taking the garrison prisoner and retiring again to Ticonderoga. In the following autumn, when the Continental Congress assembled at Philadelphia decided upon the invasion of Canada, one of its armies under the command of Generals

Schuyler and Montgomery advanced northwards by the Lake Champlain route. Montgomery met with little resistance at the Île-aux-Noix which had only a small garrison, and it was at this point that he issued his famous proclamation urging the French Canadians to join the revolutionary cause. Farther to the north, Stopford, the British commander at Chambly, surrendered to the Americans tamely, but Preston, the commander of the fort at St. Jean, put up a very courageous stand in the face of heavy odds and was able to slow down materially the advance of Montgomery and his men towards Montreal.

During the following winter, 1775-76, when the Americans were forced to beat a hasty retreat towards their own land after having failed to capture Quebec, they burned all three forts along the Richelieu, but these were all speedily rebuilt by Sir Guy Carleton. In the later stages of the struggle, the fort at Chambly formed the starting point for the ill-fated expedition of General Burgoyne down Lake Champlain, which ended in the surrender of his armies to the Americans at Saratoga.

During this period, the forts at St. Jean and the Île-aux-Noix formed the bases for naval operations by the British against the Americans on Lake Champlain. Boats were brought up the river for this purpose from Sorel as far as the rapids at Chambly. Here they were taken apart and transported by land around the rapids in the river to St. Jean, where they were reassembled for active service.

In the meantime, with the ever-continuing danger of further invasions by the Americans along this frontier, the British military authorities decided to build a much larger and stronger stone fortification on the Île-aux-Noix under the name of Fort Lennox. Much of this work was done by German mercenaries from the states of Brunswick and Hesse under the command of General Adolphus Von Ridesel. Extensive earthworks were built on the island and the fort was surrounded by a moat. This was an ambitious and costly undertaking, but the fort was never destined to be used for the purposes for which it had been built. No further attacks were made by the Americans on Lower Canada during the remainder of the Revolutionary Wars.

During the period of the War of 1812, there were no land military operations of any very great importance in this region of the Richelieu River, with the exception of the battle of Lacolle close to the international boundary in 1812; but the Île-aux-Noix figured prominently again in the brisk naval fighting which took place on Lake Champlain. A naval dockyard was set up on the island where several small vessels were built which took part in the disastrous expedition of Sir George Provost against Plattsburg at the very end of the conflict in 1814. After the close of hostilities in 1815, the British Government decided to enlarge the fortifications on the island still further, and during the next decade it erected the imposing stone building which still stands there.

In the decades after 1815, the tension between Canada and the United States gradually lessened and the stragetic importance of the Richelieu region declined. The fort at St. Jean burned to the ground in 1816, and two decades later the military buildings which today form part of the Royal Military College of Canada were built on this same site. The British Government, however, still retained garrisons in the forts on the Île-aux-Noix and at Chambly, and the latter became the centre of a gay social life when British officers who had served in the Napoleonic Wars were stationed there.

There was one last flare-up of military activity in this region of Lower Canada in the autumn of 1837, when the French Canadian *Patriotes* under the leadership of Papineau and Wolfred Nelson rose in revolt against the autocracy of the Chateau Clique. This whole region along the Richelieu River was one of the main sources of the *Patriotes'* strength in Lower Canada. Two of the chief military actions of the rebellion took place in the villages of St. Denis and St. Charles in the section of the river between Sorel and Chambly at the end of November 1837. The second of these battles was a disastrous rout for Papineau's followers and marked the end of the uprising.

During this period, deep and far-reaching changes were taking place along the Richelieu

St. Denis, where the British troops were forced to retire in 1837. From the painting by P. J. Bainbrigge, R.E.
Public Archives of Canada

with the coming of new means of transportation such as canals and railways. The first railway in Canada, the Champlain and St. Lawrence, was completed between Laprairie on the south shore of the St. Lawrence and St. Jean in the period 1835-6, and during the next two decades a series of rail lines were built across this area linking Montreal with Burlington, Albany, New York and Boston and other points in the north-eastern United States. At the same time an agitation arose among commercial interests in Montreal for the construction of a series of canals around the rapids in the river at St. Ours and between Chambly and St. Jean so that steam navigation would become possible between Montreal and Sorel and points on Lake Champlain. A bill was passed in the legislature of Canada for the construction of such a canal system as early as 1818, but the work on the project was very slow. The section between Chambly and St. Jean was not completed until 1836 and through navigation between Sorel and the north end of Lake Champlain only became possible in 1850 with the completion of the locks at St. Ours.

Since by this time there was no further military justification for the garrisoning of the remaining forts at Chambly and the Île-aux-Noix, the British Government decided to abandon the former in 1851. But Imperial troops were stationed on the Île-aux-Noix until the withdrawal of the British garrisons from Canada in 1869.

Very soon these neglected sites began to fall into decay and the buildings to crumble into ruins. However, in the 1920s both sites at Chambly and Île-aux-Noix were taken over by the National Parks Division of the Canadian Government, which has done a great deal to restore them to their original condition. Today they are among the best preserved pieces of military architecture in the whole of Eastern Canada.

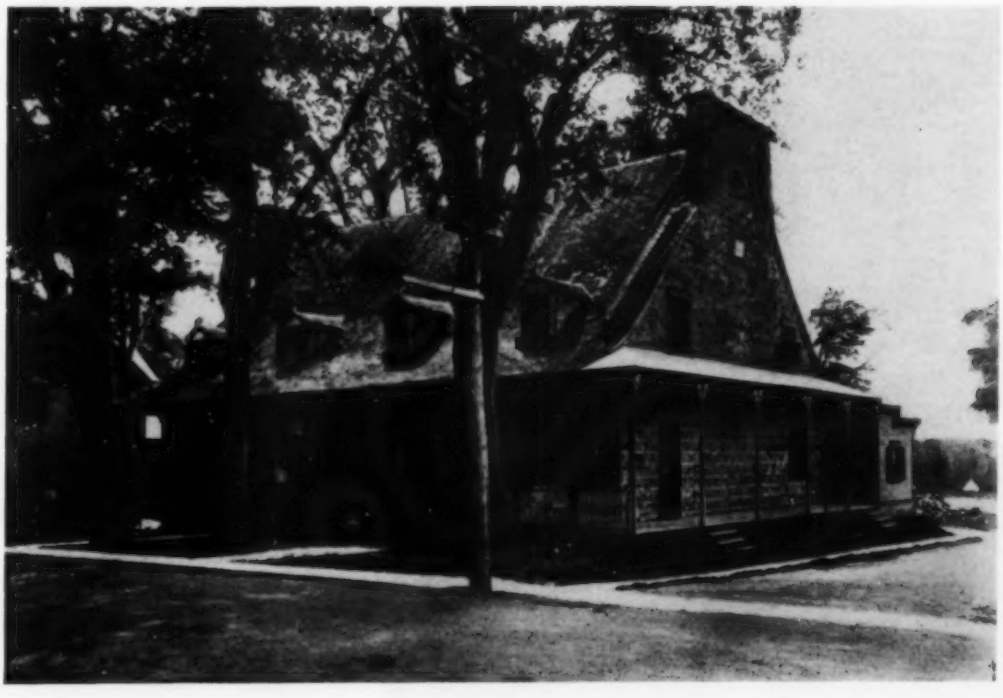
When seen from the exterior, the fort at Chambly, which is located in the centre of the community close to the main highway between Montreal and Sherbrooke, presents much the same impressive appearance as it did when it was originally built by the French Government well over two and a half centuries ago. The thick stone walls over thirty feet high are still standing on the east, west and south sides. But

the north wall, facing Chambly, was destroyed many years ago by the pressure of the ice and this side of the fort remains open to the river. The panorama from here to the north up the river is very attractive, with the peaks of Mount St. Bruno and Mount St. Hilaire visible in the distance.

One enters the fort from the west through a gateway around which are carved the names of the English, French, American and Canadian military figures who have played important roles in this region of Canada. Along the south wall one can see the remains of two great stone fireplaces which were erected during the period of the French regime. A chapel, a hospital and a chaplain's house once stood here. The square bastions at each corner of the fort, which were erected during the French regime, still remain and in the north-west one facing the river the remains of a powder-magazine and a storehouse are still visible. In the north-west bastion one can still descend into a damp and dark little cell where prisoners were kept when the fort was in use.

On the west side of the interior court the Canadian Government has built a stone museum in the late eighteenth century style, which harmonizes well with the rest of the fort and houses an interesting and varied collection of objects connected with the history of this part of French Canada, including old prints and photographs, pieces of early French Canadian furniture, wood carving and handicrafts, military and Indian relics, and so on. Outside of the walls of the fort near the Chambly Basin exist still the remains of an old cemetery which dates back to the early period of French settlement, where one can see the graves of some early pioneers and American troops of occupation who died in a smallpox epidemic during the winter of 1775-6.

The town of Chambly surrounding the fort contains several buildings and historical monuments of great interest connected with the British nineteenth century garrison. Not far from the fort stands a statue by the noted French Canadian sculptor, Philippe Hébert, erected in 1882, of the Canadian military leader General Charles de Salaberry, who drove back the American invaders in the battle of Chateauguay in the War of 1812. After the close of the war, de Salaberry came to live in Chambly and his handsome grey stone house built in the Georgian style still stands on a street near the river. By the highway also is located the little Anglican Church built in 1820 for the members of the garrison. With its simple, dignified and graceful lines, this is one of the best examples of early nineteenth century Protestant religious architecture to be found in this region of Canada. Of great interest also is another eighteenth century house which served as a headquarters



The Dorion house at St. Ours. Dr. Jacques Dorion lived in the large stone house, shown here, which is still standing. He was arrested in December 1837 as a rebel and his house was pillaged.
Public Archives of Canada

Fort Chambly (right), showing the walls and north-west bastion, with Chambly Basin in the background. Below is shown the entrance to Fort Chambly from the west side. The names of men prominent in the history of the region are carved around the doorway.

C.N.R.

for General Burgoyne during the period of the American revolutionary wars.

Southwards from Chambly along the Richelieu River, little evidence remains today of the stirring military events of this era in the seventeenth and eighteenth centuries. A plaque near the highway marks the site of Fort Ste. Thérèse built by the Carignan Regiment in the middle of the seventeenth century. At St. Jean the site occupied by the fort built by the French Government in the 1740s is today occupied by the buildings of the Royal Military College. But twelve miles farther south the fort on the Île-aux-Noix is still in a perfect state of preservation. Like Chambly, this stronghold is built in the form of a quadrilateral, with bastions at each corner and very thick walls surrounded by a moat. Inside the walls is a group of two-storey stone buildings shaded by tall beautiful elms trees and grouped around a central open space or parade ground. These include the officers' quarters and barracks for the privates, a guardhouse, a building for the stores and canteens and ovens where the bread for the garrison was baked, and the kitchens. The officers' quarters and guardhouses are fine pieces of architecture. Along the first storey of each of these buildings runs an arcade fronted by a colonnade. Outside of the fort, on the counterscarp bordering the moat, one can see the places where the cannon were placed in position to sweep the river and defend the fort.

The remains of a short canal and enclosed basin are still visible by the river. These were used as a protected place for naval vessels and as a shipyard during the War of 1812. On this

section of the island are the remains of two cemeteries, where members of the British garrison were buried during the eighteenth century, and the ruins of a church built during the same period. One of the buildings of the fort has been made into a military museum which houses a very interesting collection of objects connected with the history of the Île-aux-Noix, including Indian relics, ancient coins, weapons and firearms of various epochs, and a valuable and unique collection of military buttons and insignia of the regiments of the British Army.

Of the other forts built along the Richelieu River by the French Government during the period before 1763, the second one erected by de Sorel of the Carignan Regiment in 1665 has long since disappeared, but a plaque marks the site near the docks of the Canada Steamship Lines on the water-front. At the other end of the chain, the government of the State of Vermont has marked the site of Fort Ste. Anne, which was built by the French on the Île La-Motte on Lake Champlain during the same period.

During the past half-century, because of its proximity to Montreal and site on so many important rail and road transportation routes, the economic growth of the whole Richelieu region has been very marked. St. Jean today, with a population of over 20,000, is the home of many industries, including the Canadian plants of the Singer Manufacturing Company and St. Regis Paper Company and there are also important industries in the region around Beloeil and St. Hilaire farther to the north. Today Montreal is expanding so rapidly in the region to the south and east of the St. Lawrence that many people make their homes in these very pleasant communities and commute daily into the metropolis to work. The economic future of this whole section of the Province of Quebec is bound up very closely with the plans which are being widely discussed at the present time for the improvement of the series of canals which were built in the nineteenth century at St. Ours and between Chambly and St. Jean. Far too narrow and shallow to accommodate any volume of present-day water-borne traffic, they have largely fallen into disuse, save by pleasure craft in the summer months.

During the past decade, groups both in the Province of Quebec and in the American states to the south, such as New York and Vermont, have advocated the deepening of these canals to create a new water-way between Montreal and Sorel and Lake Champlain which, with the Champlain and Hudson Canal between Whitehall and Fort Edward, New York, would extend eventually to Albany and New York City. If linked with the new St. Lawrence Seaway channel at Montreal, it is believed by the proponents of this water-way that it would bring a great deal of commerce to the Richelieu River region.

In spite of all of these changes, however, the Richelieu still retains much of its beauty and its historic and charming French atmosphere. One still sees by its banks the long lines of tall poplar trees and the little stone farm houses with their dormer windows and sharply sloping roofs, often dating back to the eighteenth century, which are so typical of French Canada. Few regions of Eastern Canada have more to offer the student and lover of architecture and the past.

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The Museum Building in Fort Chambly National Historic Park (north-west bastion in background).
Canadian Government Travel Bureau

Some Wild Animals of Canada—Part II

Notes and photographs by W. V. CRICH

Mule Deer (*Odocoileus hemionus*)

THE MULE DEER, so aptly named because of its huge sensitive ears, inhabits our western forests. It is chiefly a mountain animal but is also found in cactus and sagebrush country.

When running, the mule deer has a rather distinctive bounding gait, with all four feet in the air at once. Its bushy, partly black, tail and enormous ears distinguish it from any other American deer.

The colour of its coat changes with the seasons. It is reddish in summer and blue-gray in winter. The antlers, on the males only, branch equally and do not form prongs from a main stem as in the male white-tail deer.

Bucks keep to themselves in the summer while their antlers are in the velvet. As the mating season approaches the old bucks gather together in bands of about six animals. Each winter they lose their antlers and these are again renewed in the springtime.

Elk or Wapiti (*Cervus canadensis*)

WAPITI are mountain animals living during the spring and summer in the forests of the timberline and in the alpine meadows. Here last year's young and the females with their fawns band together until the winter's heavy snows force them down to the valleys and foothills.

The bull elk generally lives alone all summer, or sometimes two or three band together. Then with the coming of autumn and the mating season each bull gathers together a small herd of cows over which he rules.

At this time a male elk is more dangerous than the grizzly bear. He will attack anything that moves within his sight. Just recently one wrecked a truck that was travelling along the main highway near Banff. The elk escaped unhurt from the encounter. One of nature's most spine-tingling calls is the bugle of the male elk as he seeks a mate or challenges another bull to combat at this season. Cows and calves, when separated from each other as when swimming a river, fill the air with screaming sounds until the whole herd is united again.

Wapiti are very fond of aspen bark and throughout their range all aspen trees show a rough, blackened trunk as high above the ground as it is possible for the elk to reach. Most of this scarring is done when they are in their winter range and ferns and grasses are snow-covered.

Elk are the most majestic of all members of the deer family and are second in size only to the moose.

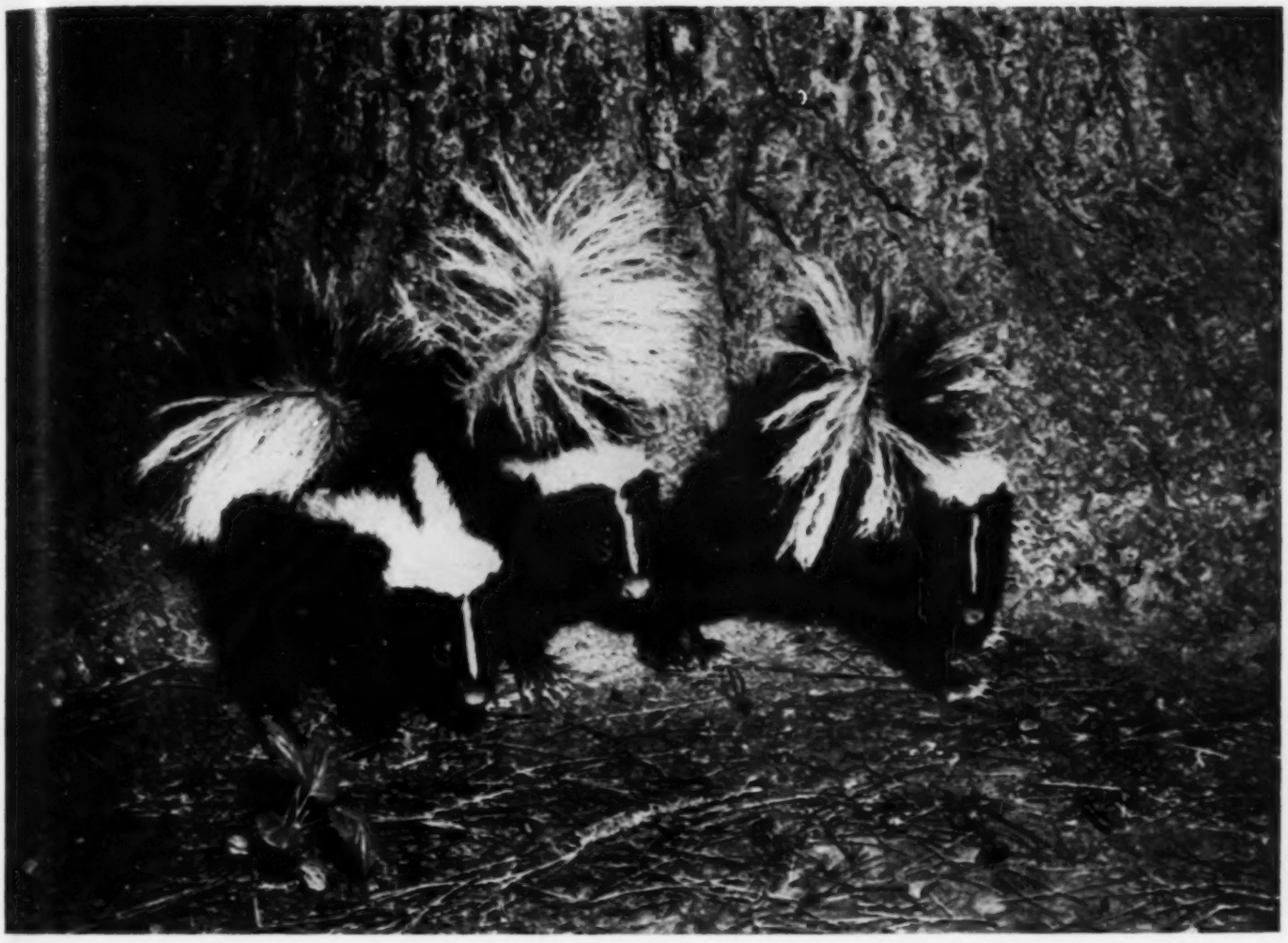
Mountain Sheep (*Ovis canadensis*)

THE MOUNTAIN RANGES of our continent are the home of the mountain sheep.

Brown or grayish brown in colour, with a creamy white rump, these animals have massive horns, especially the males. The horns form a spiral and are prized by trophy hunters.

All plants found in the mountain region supply their food. In the summer months they forage high up the mountain and with surefootedness and grace bound from rock to rock on the steep mountain slopes. In winter they are driven down to the valleys in search of food. In the spring, when the lambs are born, the young form easy prey for coyotes, bald and golden eagles, wolves and mountain lions. Their cry is the familiar "baa" of our domestic sheep. Seeing them wild, in their native haunts, is an experience one never forgets.

The animals shown here are females.



Skunk (*Mephitis mephitis*)

No other wild animal is as well known as the skunk in Canada.

These three young skunks disobeyed their parents and went foraging on their own. It took considerable time to get them herded together in one group for photographic purposes. I was well warned of their displeasure by their little growls and by the stamping of their front feet impatiently on the ground. Being so small, I reckoned they were still harmless. As the flash-bulb exploded they did a complete about-face. I still thought they were bluffing and prepared for another shot. Then in unison they beat me to the draw. Their aim was deadly and I got the full blast right in the eyes.

For the time being photography was forgotten. Nearly blinded I went to the nearest farm-house. I told the lady of the house what had happened and as she went inside to get me the usual antidote — tomato juice — I started to follow her, only to be told, "Would you mind remaining outside and I'll bring it to you." Anyway I got in the first shot.

Skunks are found ranging in all kinds of habitats, but prefer mixed woodlots and fields near the vicinity of man. Their homes are small cavities among rocks, hollow logs, dens dug in the ground or even under houses and farm buildings. The end of the burrow is warmly lined with grass and leaves and here the litter of three or four young is born in April or May. Omnivorous, they live chiefly on insects and mice injurious to the farmer and well repay him for the odd egg they may steal from him. As they are nocturnal in habit they are not often seen except in the headlights of cars along the highway.

One of nature's spectacles, seen by very few, is the female, followed by a single file of young, searching in the sand for turtles' eggs on the shore of some small sandy lake in June. They often follow the turtles from the lake and as soon as the eggs are laid, dig them up and eat them.

Hudson's Bay Company employees "tracking" up the Athabasca River. Boats were more suitable than canoes for heavy freight and lake travel. Forts Edmonton and Dunvegan partially supplied northern and New Caledonian posts with food and other articles.

Ernest Brown Collection

Agriculture in Alberta

by R. E. ENGLISH

Alberta Government photographs except where credited.

THE AGRICULTURAL resources of Alberta are rich and diversified, but they are far from being fully developed. It is estimated that eventually 68,000,000 acres of land may be utilized for agricultural purposes, but in 1956 only 46,000,000 acres were in occupied farms. About 30,000,000 acres of land in the province are classed as good to fair arable and 10,000,000 acres as fair to poor arable. At the present time about 23,000,000 acres of land in farms are improved. A high proportion of the non-arable land suitable for farming may also be improved for pasture or hay meadow by brushing, draining, and seeding to tame grasses and legumes.

The possibilities for intensification in the use of land now occupied are becoming increasingly apparent. In the years ahead production will improve through better farm planning and management programs; the application of findings in relation to crop and livestock breeding; improvement in the design and operation of farm equipment and machinery; the greater use of agricultural fertilizers; and the introduction of more effective cultural practices, rotations and crop sequences.

Good though it may be to look to the future, the present conditions with regard to production on Alberta farms are satisfactory. The

optimism that is inspired by well-tilled fields and growing crops, the deep satisfactions that accompany hard work and harvest time, the feeling of growth associated with animals on pasture or in feed-lot, and the competence shown by farmers in the management of the resources with which they are entrusted, all speak eloquently of the success of settlement and agriculture in the shadow of the Canadian Rockies.

Parade of Prize Winners

Success in exhibiting the products of one's labour gives encouragement to still greater effort. Alberta farmers have been pre-eminently successful in showing against the world's best. Alberta won championships in wheat and oats at the International Philadelphia Exhibition in 1876, and won the wheat championship again in 1893 at the World's Columbian Exposition at Chicago. This province was a leading winner at the world's grain exhibition held at Regina in 1933. Since the inception of the Chicago International Grain and Hay Show in 1919, Alberta winnings have been consistently spectacular. These include about one hundred championships in the grain and seed classes.

In 1912, a carload of steers "shipped in an open stock car from Carstairs" and exhibited at the Toronto Fat Stock Show, "were accorded first prize over their eastern stall-fed competitors." For a period of years from 1919 onwards, breeders of pure-bred stock co-operated with the University of Alberta in the preparation of exhibits of fat cattle for showing in the east. Immediate success attended the endeavour. In 1922 the championship in Galloways and the Shorthorn special were won at Chicago; another Shorthorn was champion at Toronto, while a third won a championship at Guelph. In 1927, Alberta entries won grand and reserve championships after taking four breed championships in the fat stock division at the Toronto Royal Winter Fair. Continued success and financial assistance accorded exhibitors at the Royal and the Chicago International Fair by the Alberta Government have increased the number of exhibitors. In 1956 Alberta won the world championship in wheat, oats and barley and a reserve championship in wheat at Toronto and Chicago without duplicating a name, and at the Toronto Royal Winter Fair of 1956 Alberta won 262 prizes in the livestock exhibit, of which thirty-one were in the championship bracket.

The Fur Trade and Agriculture

The name of Peter Pond, an original partner in the North-West Company, will be forever associated with the beginnings of agriculture in Alberta. In 1778, Pond crossed the height of land into the drainage basin of the Mackenzie River and established trade with the Indians. From 1785 to 1788 he stayed in the country during the summer, making his headquarters at Elk River about forty miles south of Lake Athabasca. When Alexander Mackenzie arrived in 1787 to assume charge in the district, he reported that "Mr. Pond . . . had formed as fine a kitchen garden as ever I saw in Canada." Mackenzie's narrative continues: "In the summer of 1788 a small spot was cleared at the Old Establishment* and sown with turnips, carrots and parsnips. The first grew to be a large size and the others thrived very well. An experi-

*Presumably across the river from the present Fort Vermilion.

A homestead scene in parkland country. The house moulded of local materials is typical. Success depended upon the fertility of the surrounding undeveloped land. Not all were fortunate in choosing a location. Ernest Brown Collection

Early trails and modes of travel have changed since "The Fort Trail", running north of Edmonton, was a wagon road. The team and buggy would have no place on today's modern highway.
Ernest Brown Collection

ment was also made with potatoes and cabbages, the former of which was successful but for want of care the latter failed." It has been suggested by Harold A. Innis that the use of pemmican (pounded bison meat mixed with grease) produced by the Indians was crucial to Pond's success in establishing trade in the Mackenzie River Basin. As the trading organization expanded, food requirements at the posts were met to an increasing extent by the development of agriculture. Wherever traders summered in the country, vegetables were grown. Wheat was produced where experience showed that there was reasonable expectation of a crop but barley was generally preferred. Cattle, horses, and pigs were introduced.

Entries in fur post journals indicate the problems involved. The cow and the horse were frequently companions in harness. Makeshift implements limited production. At Dunvegan in 1854-5 we find "Carpley variously employed, making a harrow, etc.;" and another journal entry reads "Canada took the plough again to pieces and fixed it up better . . . it is a poor affair." However, provisioning was so important in the economics of the fur trade that Sir George Simpson, long-time resident governor of the Hudson's Bay Company, gave his personal attention to the development of agriculture at the posts. Forts Edmonton and Dunvegan became the principal supply depots on account of their favourable situation in respect to agricultural resources. Food-stuffs, including pemmican and dried meat, were produced or secured through trade with the natives, and distributed to posts in less favour-

For many years stooks were the symbols of harvest-time. The introduction of the combine harvester has made scenes like the one below a nostalgic memory where straight grain growing is practised.

able country or sent to provision the brigades of voyageurs on their return journey with furs. Eventually employees retiring from service with the Hudson's Bay Company formed settlements adjacent to the trading posts. Farming became a part of life at mission centres. Gradually, knowledge respecting the possibilities for agriculture in these territories attracted interest from outside. The authority of the Hudson's Bay Company declined as settlement increased and trade in furs diminished. This prepared the way for the sale of Prince Rupert's Land to Canada in 1869 and the consummation of Confederation by the construction of a transcontinental railway.

Early Settlement

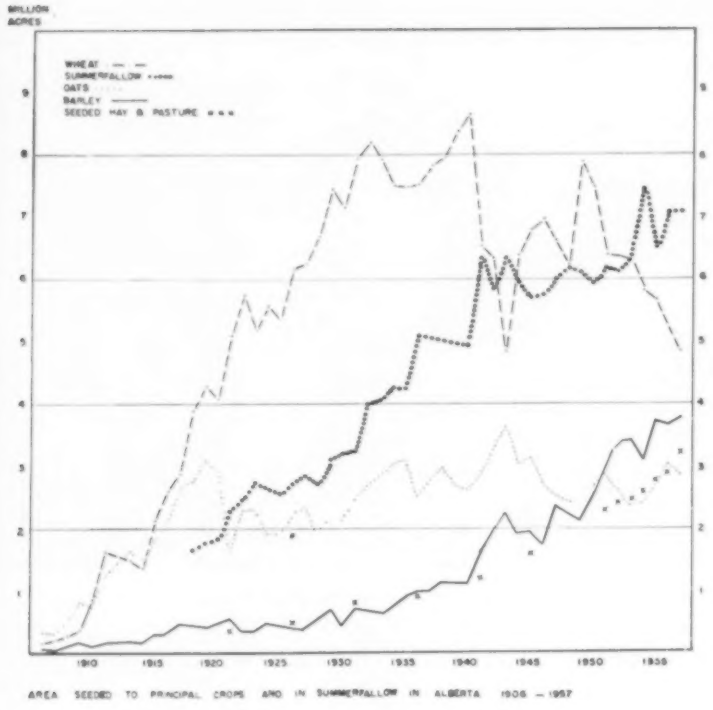
In 1857 a British expedition under Captain John Palliser was sent to Prince Rupert's Land to explore the local possibilities for settlement and agriculture. He reported that at some future time the produce of the country would be great, but development, he wrote "was a matter of remote concern". Successful settlement in the foreseeable future would depend upon establishing a self-sufficient agriculture. Certainly development was slow for many years. There was much coming and going of potential settlers with little gain in population till near the end of the century. The arrival of the North-West Mounted Police in 1874 made possible the development of cattle ranching in the south. The first herds were driven in from the United States and this early stock was improved by the importation of bulls from the United Kingdom. Very soon, cattle ranching in the foothills of the Canadian Rockies caught the fancy of Britain's aristocracy, and money from that source quickly placed the industry on a commercial basis. In 1886 a shipment of Alberta cattle was sold on the United Kingdom market. Railway development provided access to many new markets but transportation costs were high which reduced the farmers' returns almost to the vanishing point. Rates on wheat and oats moving from Alberta points to Fort William were eighteen and ten and one-half cents per bushel respectively. Many farm and mill products were moved eighth class, on which rates to Revelstoke and Victoria were forty-four and sixty cents respectively, per hundred pounds. Consequently, while production expanded, the market for farm products deteriorated. The drop in prices of grain at Edmonton between 1882 and 1891 illustrates the situation. Wheat fell from $2.00 to sixty cents a bushel; barley from $1.00 to twenty-five cents; and oats from $1.15 to eighteen cents a bushel.

Because of smut, barley content, and frequent frost damage to the Alberta wheat, flour brought in from Manitoba sold at a premium on the local market. ("The black flour of Edmonton has always been a reproach to it".) Settlers also complained that there was discrimination against local bacon by consumers, who preferred an imported product more attractively merchandised. The circumstances offered no incentive for improvement or expansion in farming.

Expansion

The need for food in relation to the development of mining in the Kootenay region of British Columbia provided the first market of any consequence for Alberta's farm produce. At the outset most of the provisions were imported from south of the border, and some

The sequence of harvesting operations was completed when the threshing machine had done its work. Custom threshing was extensive in early days.
J. Rosettis



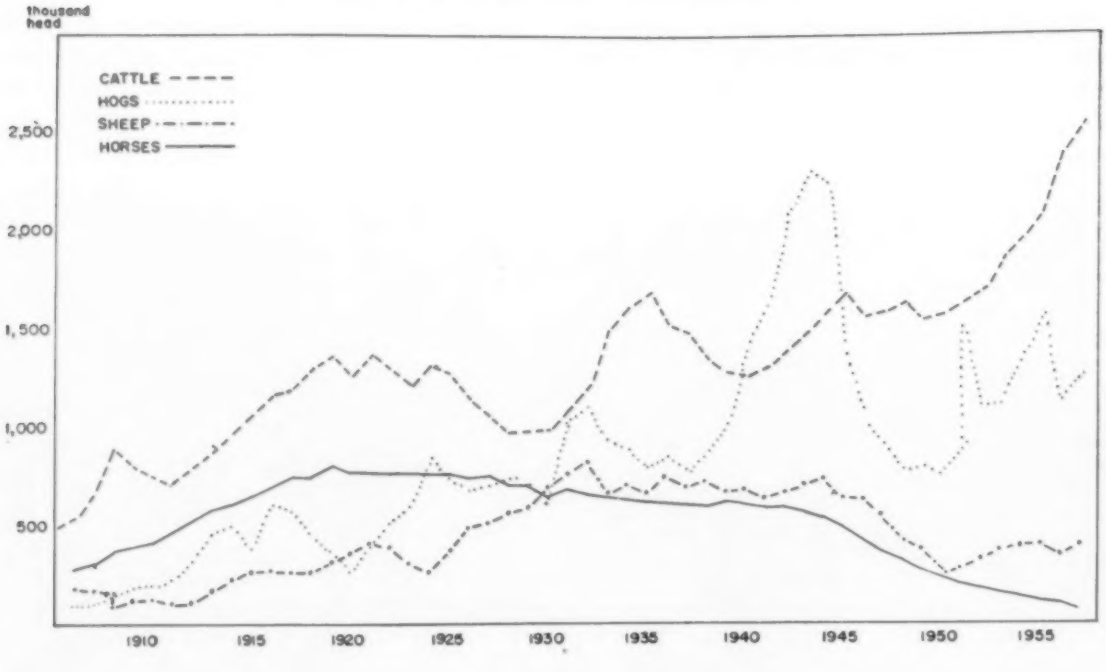
Area seeded to wheat, oats, barley, hay and pasture, and in summer-fallow, Alberta, 1906-1957.

cattle were driven in from east of the Rockies. Then, in 1897, Canadian Pacific Railway rates were reduced on farm products moving from prairie points to the Kootenays. It would appear that the area between Calgary and Edmonton benefited most from the trade that developed in grain, mill stuffs, vegetables, livestock, meats, dairy products, poultry products and so on. The importance of the Kootenay market to settlement and agriculture in Alberta cannot be over-emphasized. It made possible the successful establishment of flour-milling and pork-packing industries at Calgary and Edmonton as well as butter and cheese factories at many points. Markets expanded beyond the Kootenay into the Klondike. In 1901 the British Government purchased half a million bushels of oats in Alberta for use in the South African campaign and a year later oats were shipped to Australia, where drought had created a shortage. The market was further widened through extension of lower railway rates on grain exported.

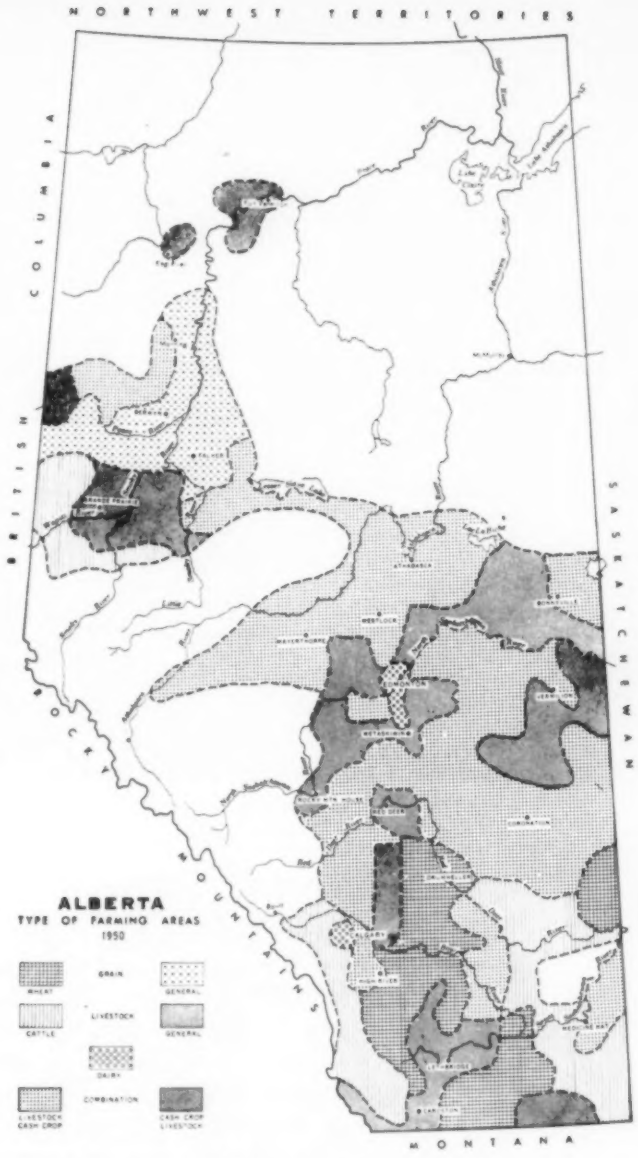
An expanding world economy and growing outlets for farm products after the turn of the century combined to increase settlement and farm production on the prairies. In Alberta, the number of occupied farms increased from 9,479 in 1901 to 60,559 in 1911; the area of occupied land increased from 2.7 to 17.4 million acres, and the area of improved land from 0.5 to 4.4 million acres. In the same period cattle numbers doubled to 740,000 head; hogs increased five-fold to 238,000; sheep raising made substantial gains; and poultry numbers increased nearly ten-fold to 2,453,000. The rise in the number of horses from 92,661 to 407,153 only partially indicates the increase in farm power needs, because the use of oxen was not uncommon in those days.

In spite of greatly expanded markets, increased production resulted in farm sur-

Live-stock population, Alberta, 1st June, 1906-1957.



Type of farming areas, based on sources of farm income for 1950. A majority of Alberta farmers combine live-stock production with grain growing.



pluses and low prices persisted. The growth of farmers' organizations and the pressure brought upon the government of the day reflected the acuteness of the problem. Beef and pork commissions were appointed in 1907 and 1908 respectively. The former submitted eighteen recommendations, one of which requested that "the government appoint a live-stock commissioner, whose chief business it would be to attend to the marketing of Alberta export cattle." The pork commission reported that "the farmer has not received what he considers a fair price (five cents per pound live weight) for his hogs. In very many cases he has not been able to receive any price at all; that his energies have been curtailed on this account . . . and still seventy-five per cent of the cured meat (consumed in the province) is imported."

Meanwhile, the situation regarding the surplus of grain and low prices was an important factor leading to the organization of a farmer-owned-and-operated grain elevator company. The First World War (1914-18) relieved the situation and development again proceeded rapidly. The area devoted to field crops increased from 3.4 million acres in 1911 to 8.5 million in 1921. Live-stock numbers about doubled in that period. A mild economic recession beginning in 1921 slowed down the expansion. However, before the middle of the decade conditions again became favourable.

The swather cuts and windrows the grain for drying. Its introduction made possible the widespread use of grain combines in Alberta. In 1956, there were 33,531 combines in the province.

Most of the remaining then accessible farm land was brought into production, aided by the introduction of tractors adapted to farm use. In the decade, the area of occupied farm land increased from 29.3 to 39.0 million acres.

The United States placed an import duty on cattle in 1920 which was increased in 1921 and 1931. Although the British embargo against feeder cattle from Canada was lifted in 1923, the United States tariff seriously retarded cattle raising in Alberta until the introduction of lower rates for specified quotas in 1936.

The Ottawa (British Empire) Trade Agreements of 1932 and the Canadian-American Trade Agreement of 1936 provided for the expansion of markets for live-stock and live-

A farmstead in the black soils area. The cluster of buildings is the result of expansion to accommodate a growing farm business. Dan Campbell

stock products. Income from these two sources increased from thirty-five per cent of total farm cash returns in 1931-35 to forty per cent for the years 1936 to 1940. In 1940, a record 8.7 million acres were seeded to wheat. But World War Two requirements, backed by government policy designed to encourage the production of live-stock quickly, changed the farm program. In three years the area in wheat dropped nearly fifty per cent, while oats increased by a third, and the barley acreage doubled. Livestock production moved up sharply and livestock sales accounted for fifty-four per cent of farm cash income during the war. For only a brief period after the war relative prices again made grain production attractive. In recent years wheat surpluses and an expanding market for meat have led to increased interest in the production of coarse grains and fodder. The long-term trend would appear to be toward diminishing dependence upon grain as a cash crop.

Adjustments in Land Use

One hundred years ago, Palliser described Alberta's parkland as "fine land fit for all purposes . . . a desirable place for settlement." On the other hand, "The true prairie is wanting in good soil (and has) in parts not inaptly been termed 'desert'." Palliser indicated the agricultural potential of the prairie when he added, "The grass is short but at the same time nutritious and remains throughout the winter juicy and fit for the nourishment of stock." The area was adapted to support a grazing type of farming. At the outset, the Dominion Government restricted homesteading in areas considered to be unsuitable for arable purposes. Pressure from land-hungry settlers brought about a change in policy whereby large grazing leases were broken up. The subsequent failure of so many of these settlers to make grain-growing pay on the prairie was a sad commentary on Palliser's earlier judgment.

Land use adjustments in the semi-arid regions extended over a considerable period. Progress was slowed down by the occurrence of above-average crop years. Governments provided seed and feed relief in dry years, which were hopefully looked upon as exceptions. Debt moratoriums postponed the day of decision.

Finally farmers in the area were assisted to relocate their farms, and the utilization of vacated land was controlled. In an east-central area (census division number five) the number of farms decreased from 5,975 to 2,895 and the number living on the farms from 19,841 to 8,562 between 1931 and 1951. The development of irrigation methods ended the struggle against drought in some districts. In the more humid regions, adjustment to agricultural resources was achieved for the most part without distress. In all regions, the development of suitable crop varieties, cultural practices and cropping sequences was important in the adjustment of old-world agriculture to the new.

Agriculture Still Important

The highly publicized development of Alberta's mineral resources and the growth of manufacturing industries have perhaps overshadowed the considerable gains made by agriculture in recent years.* Alberta farms are producing more now than ever before and, with reduced dependence on the production of crops for cash sale, agricultural income is becoming less subject to violent yearly fluctuations. Census statistics on the source of farm income for 1950 show that an association of live-stock and field crop enterprises is found on a high proportion of Alberta farms. Specialization in live-stock raising is more prevalent than straight grain production. For the first time, too, it is possible to delineate areas near Edmonton and Calgary in which live-stock production with specialization in dairying predominates. The accompanying table showing the principal sources of farm cash income for the province since the war indicates the trend.

FARM CASH INCOME FROM THE SALE OF SELECTED PRODUCTS IN THE POST-WAR PERIOD

Product	1946	1951	1956
	—thousand dollars—		
Wheat*	136,673	179,175	133,943
Cattle	50,515	93,309	86,372
Hogs	41,783	65,720	68,237
Dairy	20,855	26,955	30,064
Poultry	12,378	20,226	27,816

*Includes Canadian Wheat Board payments in the year in which received by farmers.

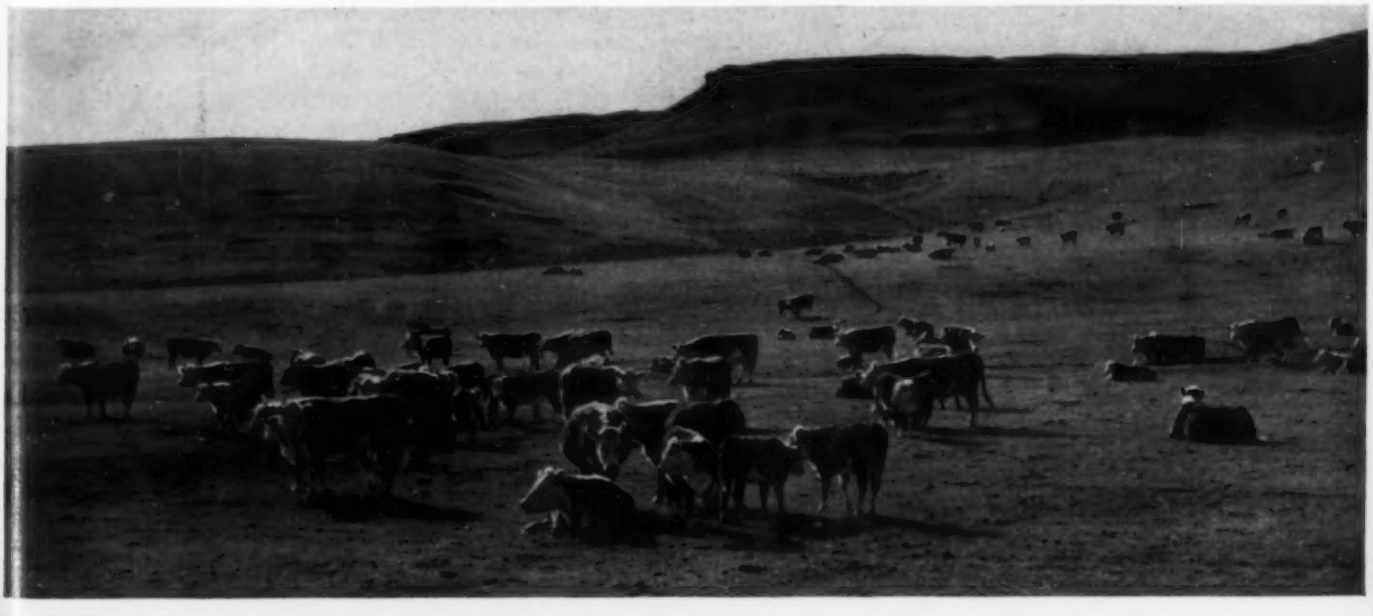
Increasing diversification in the output of Alberta farm products has accompanied a trend toward specialization on individual farms. A varied soil-climatic pattern provides an opportunity to specialize in any one of a number of farm enterprises within the borders of the province. Even in mixed farming areas, there is a strong tendency toward production of one or two lines peculiarly adapted to the region, the farm, or the preference of the farmer.

Farmers Extraordinary

In the early days of agriculture in Western Canada, outside interests owned many large tracts of land and ranching "spreads." However, the industry did not thrive on absentee ownership and, in most cases, control passed to local interests. Often the former farm worker or cowhand became the new owner. The ability to adapt to new and changing circumstances and to manage operations efficiently were prime qualities leading toward success. Men with

*Agriculture contributed seventy per cent of total production in Alberta from 1921 to 1930 and forty per cent for the period 1950-54.

Cattle on the range. In 1956, 1,600 Alberta farmers and ranchers reported 178 or more cattle. Some 3.5 million acres of crown land in Alberta are made available for grazing on long-term lease. N.F.B.



these qualities found an opportunity to develop their personalities and their fortunes in the new land.

George Lane

The Bar U ranch was the second largest "spread" to be established in Alberta. It was owned by the Allan family, shipping magnates of Montreal, whose manager brought in George Lane from Montana to be ranch foreman. Later, Lane started horse ranching on his own account and, in 1901 joined with Gordon, Ironside and Fares of Winnipeg to purchase the Bar U.

When Lane became the sole owner of the ranch in 1918, it consisted of 50,000 acres of deeded land, 9,000 head of cattle, 700 head of pure-bred *Percheron* horses and 1,000 grade horses. Bar U *Percherons* were world famous. To start the stud, carefully selected animals had been brought in from the United States. This original stock was improved through additions from the best lines of breeding. The largest acquisition consisted of seventy-two mares and three stallions which came from France in 1909. Lane achieved a fortunate "nick" (blend of blood lines) in his breeding program and Bar U *Percherons* won high awards in all the major shows in North America.

C. S. Noble

The late C. S. Noble was one of Alberta's most famous agriculturists. His work in the development of dry-land farming brought many honours, including an honorary doctorate of laws from the University of Alberta, nomination to the Alberta Agricultural Hall of Fame and honorary life membership in the Agricultural Institute of Canada.

A careful observer of cause and effect, Dr. Noble learned and demonstrated the value of shallow cultivation of prairie soils. Secondly, he found that after the fibre content of the soil was reduced through a grain-fallow system of farming, wind erosion took a terrific toll of the land in dry years. His own large fields were particularly susceptible to the scourge of drifting soil, and in 1923 he was forced to liquidate his farming empire which by that time extended over more than 30,000 acres.

But Noble was not discouraged. His faith in the "country" and the soil he loved was unshaken. He set out with renewed energy to find the secret of working with nature under the conditions that prevailed at Nobleford. He adopted the practice of strip farming but observed that this was only a partial answer. His greatest contribution was conceiving and developing the idea of sub-surface cultivation which would leave stubble and trash anchored on the surface to improve soil tilth and provide protection against erosion. The invention of the Noble blade weeder followed, which is widely regarded as the greatest single contribution to dry-land agriculture in this century.

Thus Dr. Noble learned to work with nature in an area where dry weather and wind are relentless and exacting elements. In the process, he achieved outstanding success as a farmer, and an inventor and manufacturer of agricultural machinery. His work immensely enriched the heritage of prairie agriculture.

Frank Collicutt

What George Lane accomplished in breeding *Percherons*, Frank Collicutt did in respect to Hereford cattle. The Collicutt story extends from newsboy on the Calgary-Edmonton railway to founder of the Willow Springs Ranch and the most famous Hereford herd of his time.

Collicutt acquired a piece of land, 320 acres at $3 an acre payable over ten years, in 1898. However, the foundation for success as a cattle breeder was not laid until 1912 when 177 females tracing back to "Lord Wilton," "The Grove 3rd," and "Anxiety" were purchased at a dispersal sale. To this foundation herd "Perfection" and "Beau Donald" blood were added, and in 1916 a herd of Herefords, including "Gay Lord 16th", bred by Overton Harris of Missouri, was acquired.

In the years that followed Willow Springs Herefords dominated the show and sales rings wherever they appeared. The herd was built up to 800 head, the largest pure-bred herd of Herefords in the world. Then, in 1928, the master breeder went to Crawford-Frost of Nanton, Alberta for "Prince Domino 10th." This was Collicutt's last major move as a

An Alberta exhibitor receives the New Zealand Trophy for the supreme champion ewe (all breeds) at the Toronto Royal Agricultural Winter Fair, 1957.

breeder and assured him of a place in the history of the development of Hereford cattle. Wherever there are good Herefords in North America, there you will likely find Willow Springs blood.

Frank Collicutt retired in 1947. In 1939, he had received the Coronation Medal, accompanied by a citation, for his work in live-stock improvement; he was among the first five to be named to Alberta's Agricultural Hall of Fame; and the University of Alberta conferred upon him an honorary Doctor of Laws degree in recognition of his great contributions.

R. C. Harvey

The late R. C. Harvey pioneered in the development of a breed of sheep adapted to range conditions in Western Canada. He combined a breeder's instincts with a life-long experience in raising sheep to develop a type of animal that possessed the peculiar combination of qualities needed on the range. Harvey is reputed to have spent $30,000 to develop a foundation flock of Rambouillets, then imported 250 head of Romney-Marsh sheep from the best flocks of England. He named the first cross the Rommellet and offered it "as my conception of the ideal range or farm sheep for Western Canadian conditions."

Claude Gallinger

Claude Gallinger is the most recent Alberta breeder to attain world-wide fame. He began about the mid-thirties by gathering together a good herd of Shorthorn cows and imported the best bulls available in Scotland. The imported bulls, "Balmuchy Jasper" (in dam) and "Danny Boy," brought together the richest blood in the Shorthorn world, and produced the Gallinger-bred bull "Killearn Max 5th," one of the greatest bulls ever produced in North America. The importation of "Norseman" and other outstanding animals has added further stature to the herd. In the citation admitting Claude Gallinger to Alberta's Agricultural Hall of Fame in 1951 it was noted that, "His contributions to the live-stock industry will prove not only of lasting benefit, but an inspiration to present and future breeders."

The work of the pioneers is continuing on farms and ranches in all parts of the province. Show winnings in field crops and live-stock divisions, already mentioned, serve as a record. The contribution of Alberta live-stock breeders in the production of pure-bred animals is recorded in the Canadian National Live-Stock Records (see page 110).

Grand champion Corriedale ram, Toronto Royal, 1957. The same breeder exhibited the reserve champion ram, the champion ewe and grand championship fleece. Note display of ribbons won.

Grand champion Shorthorn bull, get of "Calrossie Highland Piper" imported from Scotland. Many great Shorthorn bulls of Scotch breeding have improved the breed in Alberta. E. W. Cadman

Grand champion Aberdeen Angus bull. More than one-third of the Aberdeen Angus cattle recorded by the Canadian National Live-Stock Records are in Alberta. E. W. Cadman

Left:—
Grand champion Hereford bull. More Hereford bulls are sold by individual auction at the annual Calgary bull sale than at any comparable show and sale in the world. Ranchers favour the Hereford breed. E. W. Cadman

Toward a Permanent Agriculture

Cattle and sheep ranching were the first important commercial enterprises undertaken in Alberta after the fur trade. In the first quarter of the nineteenth century, a reasonably regular market for grain, particularly wheat, and a wave of immigrants seeking land inevitably led to a more intensive agriculture. Ranching retreated to the foothills and shortgrass areas which were not suitable for cultivation. Wheat growing on a pioneer scale required relatively little capital and returns were quick. Inevitably, a great deal of land better adapted for mixed farming was at first devoted to the production of this grain.

The British Empire Trade Agreements (1932) and the Canadian-American Trade Agreement (1936) indicated a growing need for a greater variety of food from Western Canada. Britain's need for foods of animal origin during the war accentuated the trend. Canada's wartime program of support prices and/or subsidy payments to agriculture was designed to encourage the production of specific commodities, notably dairy products, bacon and eggs. Under the Wheat Acreage Reduction Act (1941-43), Alberta farmers were paid about $25,000,000 to divert land from wheat to coarse grains, fodder crops or fallow. After the war a soaring Canadian population and the United States market readily absorbed the products of an expanded live-stock production program.

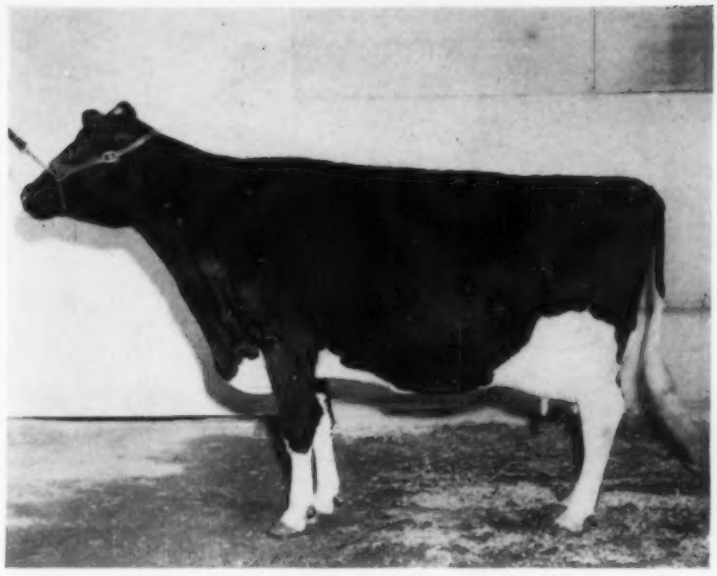
Problems associated with marketing wheat in recent years have further accentuated the trend toward live-stock production in Alberta. However, the brown and dark brown soils are pre-eminently well suited for the production of wheat. Much of the area cannot be cropped every year because of limited precipitation, making a crop-fallow sequence almost obligatory. Moreover, the topography favours the use of large-scale tillage and harvesting units

that can be used most effectively in producing grain on a specialty basis. Lastly, a major deterrent to change from wheat production is the heavy capital investment at present committed in that direction.

On the other hand, the black and grey-wooded soils can be most efficiently utilized through adoption of a live-stock production program. The average annual rainfall, varying from sixteen to eighteen inches, makes possible abandonment of summer-fallowing as a moisture conservation practice and the substitution of long-term rotations including grasses and legumes. The average frost-free period of eighty to one hundred days (sixty days in some fringe areas) not infrequently results in frost damage to wheat, which requires a longer growing period than feed crops.

The pioneering phases of agricultural development in Alberta ended between 1920 and 1936. During this period the organization of agriculture and the utilization of the resources available became more permanent in character. Circumstances during and since the war hastened the trend toward a mature system of farming. The differences in the agricultural resources available in the various soil zones are clearly indicated in the changes that have taken place. The tables on page 110, showing the use of land devoted to field crops production and changes in live-stock numbers by soil areas, illustrate the situation.

These tables show that in the last quarter-century the farm production program on the brown soils has been modified. A significant reduction in wheat acreage is associated with increases in the production of barley, tame hay and other crops. The growing of mustard seed and rapeseed has been introduced, and new interest has been shown in the production of flaxseed. The expansion of irrigation and the development of vegetable canning and freezing plants have provided markets for a wide range



Grand champion Holstein-Fresian cow at the Toronto Royal Agricultural Winter Fair, 1957. A number of world milk and butterfat production records have been established by Alberta cows.

Ten Alberta steers were shown in a class of twenty-six grades and crossbreds at Toronto in 1957. The seven Alberta entries shown above topped the class. The western province is a consistent winner with fat stock.

Right:—
At the Toronto Royal, 1957, an Alberta cattleman won the award donated to the Premier Breeder and Exhibitor of Hereford Cattle. The recipient is shown here with four of his prize-winning animals.

REGISTRATIONS OF THE CANADIAN NATIONAL LIVE-STOCK RECORDS 1940 AND 1955

	1940			1955		
	Canada	Alberta		Canada	Alberta	
	No.	No.	Per cent of Total	No.	No.	Per cent of Total
Aberdeen Angus	2,366	946	40.1	9,024	3,206	35.6
Galloway	31	29	93.5	114	71	62.3
Hereford	7,290	3,218	44.1	43,845	16,341	37.3
Shorthorn	10,276	1,624	15.8	21,265	4,214	19.8
All Cattle	40,100	6,498	16.2	103,758	24,983	24.1
Swine	12,511	2,522	20.2	21,325	5,498	25.8
Sheep	13,852	2,310	16.7	12,430	2,992	24.1

AREA SEEDED TO SPECIFIED CROPS IN ALBERTA IN CENSUS YEARS EXPRESSED AS A PERCENTAGE OF TOTAL AREA IN FIELD CROPS

	Province				Brown and Dark Brown Soils*				Black and Grey Wooded Soils			
	1931	1941	1951	1956	1931	1941	1951	1956	1931	1941	1951	1956
	—Expressed as a percentage of the total area in field crops—											
Wheat	66	53	44	36	76	71	66	57	55	38	28	19
Oats	20	23	20	20	13	13	11	13	27	32	27	26
Barley	6	13	21	24	3	5	10	12	9	20	29	34
Tame Hay	1	5	8	11	3	4	5	7	2	6	11	13
Other Crops	7	6	7	9	5	7	8	11	6	4	5	8

*Including the foothills.

THE NUMBER OF CATTLE, SHEEP AND HOGS FOR EACH 1,000 ACRES OF OCCUPIED FARM LAND IN CENSUS YEARS 1931 TO 1956

	Province				Brown and Dark Brown Soils*				Black and Grey Wooded Soils			
	1931	1941	1951	1956	1931	1941	1951	1956	1931	1941	1951	1956
	—Number each 1,000 acres occupied farm land—											
Cattle	29	31	35	53	26	25	31	48	32	36	37	59
Hogs	27	39	21	26	15	14	7	12	41	66	35	42
Sheep	20	16	7	9	30	22	10	11	10	9	5	6

*Including the foothills.

A typical rural scene near the foothills. "Strip" farming is illustrated at upper right. A fallow-grain sequence in relatively narrow strips reduces loss through wind erosion. The practice is general in the south.
Canadian Dept. of Agriculture

of specialty crops. In northern areas a major shift from wheat growing to the production of barley and tame hay took place.

In respect to live-stock, the number of cattle on farms has greatly increased. In the south, improved pasture management, the utilization of "cover" crops and a greater dependence upon irrigation for the production of feed have increased the carrying capacity of ranch and farm. In the north, the practice of better husbandry in relation to feed and fodder resources, pasture improvement and the inclusion of tame grasses and legumes in crop rotations have provided the increase in the production of fodder needed for expansion of live-stock raising.

The most significant development in the live-stock industry during the period of "growing up" has been the expansion of cattle feeding operations. In 1956, the Alberta Live-Stock Commissioner stated "farmers and stockmen gathered more feed and salvaged more straw than has been evident since the combine harvester came into general use."

The change toward marketing heavier, better finished, cattle and sheep has taken place in all parts of the province. Much of the work, however, is done by stockmen who specialize in dry-lot feeding, and the movement of grain-fed animals to market now takes place in every month of the year. Assistance in the financing of these operations may be obtained under the Alberta Feeder Associations Guarantee Act which promotes co-operative borrowing for this purpose. The table on the next page illustrates the effect of the whole development on the number and grading of butcher steers sold at central markets in Alberta at five-year intervals between 1931 and 1956.

At the same time complementary farm enterprises are changing in character and becoming more firmly established. The sale of butterfat

Left:—Dairy cows on pasture. There are 280,000 cows kept mainly for milk in Alberta. Holsteins are the most popular dairy breed. The farm value of dairy production totals about $40,000,000 annually.

A well developed farmstead in west-central Alberta. Larger farms have resulted in an increase in the number supporting two homes. This farm is operated under a father and son business arrangement.

is still an important phase of dairying but the rapid increase in the population of urban centres has resulted in larger sales of fluid milk and cream off farms. Advances in technology favour specialization, larger herds, milking machines, bulk tank handling, and soon. Competition for the market, based on low production costs per unit and high quality, is increasing.

CATTLE AND CALVES ON FARMS, THE NUMBER OF STEERS SOLD AND THE NUMBER GRADING GOOD AND CHOICE AT ALBERTA MARKETS

Year	Cattle and Calves on Farms	Butcher Steers Sold at Central Markets		
		Total Number	Choice and Good Number	Per cent
1931	1,125,000	45,818	20,429	44.6
1936	1,554,000	63,502	21,408	33.7
1941	1,342,000	63,347	32,380	51.1
1946	1,601,000	186,896	111,662	59.7
1951	1,563,000	109,621	65,282	59.6
1956	2,449,000	272,848	191,657	70.2

Eggs and poultry meat were important sources of cash income on pioneer farms. However, production was predominantly seasonal, and the quality was uncertain. As farms became more securely established the degree of specialization in poultry production increased. The success of large-scale incubation and chick-sexing changed the character of the industry. Eggs for incubation come from government tested and approved flocks. In 1956, there were 989 flocks with 318,500 hens approved in Alberta; also there were fifty-two flocks of turkeys containing 22,400 approved layers. The recent development of the industry as a whole is indicated by the fact that in the last six-year period poultry meat production increased sixty-five per cent and egg production forty-six per cent.

The production of grass and legume seeds is a major enterprise on many farms in Alberta. Legume seeds are grown principally on grey-wooded soils, where production is associated to an increasing extent with beekeeping. Not many years ago the apiarist rented sites adjacent to legume fields; now there is competition among seed growers for the pollination services that bees unwittingly provide in the

Small urban centres in Alberta are almost entirely dependent upon neighbouring farm communities. They provide business facilities, professional services, and so on as required in the district served.
Airview Photos

search for nectar. The development of this phase of beekeeping and the economies of large-scale production have brought about a reduction in the number of beekeepers, while the number of colonies operated has increased. The long-term future for the industry would seem to depend on the export market for legume seed, and on this point there is good reason to be optimistic.

Conclusion

The type of farming map on page 103 is based on sources of farm cash income for 1950 as reported by the census. Differences between soil-climatic areas in the province are reflected in the types of farming carried on in various regions. In the south, large areas are devoted to cattle ranching and wheat growing respectively on a specialty basis. However, the natural pattern of production for the region is changed where irrigation has been introduced. In the Lethbridge area, for example, about thirty per cent of total cash income for 1950 was obtained from the sale of sugar beets, potatoes, vegetables for processing, and so on. In central areas, extending from about Hanna to Athabasca, mixed farming predominates with live-stock sales providing the greater part of farm cash income. In the southern portion of this region about eighty-five per cent of the income from live-stock was obtained through the sale of cattle; north of Edmonton, income from hog sales was greater than income from cattle. Only in the Edmonton and Calgary milk sheds does over forty per cent of the total revenue from live-stock come from dairying. In the Peace River country, the production of crops for cash sale is still important. In the area bordering the river, 56.4 per cent of farm cash income for 1950 came from grain sales. At many points, however, the importance of live-stock production is increasing. At Beaverlodge, 45.3 per cent of income came from cattle sales, fourteen per cent from hogs and ten per cent from dairying. It would appear that agriculture on this last frontier is becoming more permanent in character.

Setting out in the morning mists of Lake Superior. From the engraving, "Lake Superior", by Charles Mottram, based on the painting by E. Hopkins. Public Archives of Canada

Canot du Maître or Montreal Canoe

by D. A. GILLIES

N.F.B. photographs except where credited

IN RECENT YEARS one of my hobbies has been the study of the fur trade and early Canadian exploration, largely through the journals and publications of The Champlain Society and Hudson's Bay Record Society. One fact that emerged from this reading was that the early fur traders, particularly the Nor'Westers, opened up and later extended what was in effect the first trans-Canada highway from ocean to ocean. It was a highway on which the *canot du maître* or Montreal canoe might have been termed the express vehicle.

The route ran via the Ottawa and French Rivers to Georgian Bay and Lake Superior. At Fort William the large Montreal canoes were exchanged for smaller craft called North canoes, about twenty-five feet long and more suitable for the navigation of smaller lakes and turbulent streams. From Lake Winnipeg the route was by way of the Saskatchewan River, Methy Portage and the Clearwater River to Lake Athabasca. It then ran up the Peace River to where it broke through the Rocky Mountains (to its source west of the mountains), down the Fraser River and later, when that river proved unnavigable, along the mighty Columbia River to the Pacific Ocean.

It almost staggers the imagination to follow the hardships and hazards involved in opening this route, particularly when the difficulties of travel and the character of the terrain are considered. Contemporaries had a name for an outstanding explorer such as Alexander Mackenzie — a "thruster". But it scarcely did him justice. His first thrust took him to the Arctic Ocean; his second, four years later in 1793, to the Pacific, making him the first man north of Mexico to cross the continent of North America.

The *canot du maître* was the fastest and most luxurious mode of travel known to the "big *bourgeois*" of the fur trade. These men, the

MacTavishes, McGillivrays, McKenzies, Frobishers and others — the first Canadian captains of industry — changed Montreal from a town to a city and supplied capital for its future growth and early development. The partners of the fur trade were described by Washington Irving, who knew them well, as "The Lords of the Lakes and Forests". They developed the water route opened by La Vérendrye a generation before, and the North West Company made this route into the greatest highway across the continent, either north or south of the Great Lakes.

These great canoes, often used to carry freight, served also as the pullman coaches of the North West Company partners and later were used by Governor Simpson of the Hudson's Bay Company on his annual trips. Possibly the only advantage they had over the "scenic dome" railway carriage of today was that the first class passengers had beaver skin rugs to sit on and were carried ashore on the back of the sturdy *voyageurs*.

The great water highway they traversed runs past my home on the Ottawa River. There one does not need to be excessively fey to believe one can occasionally hear, as the morning mists rise from the river or the after-glow of sunset fades in the west, the rhythmic beat of the paddles of those unbelievably hardy *voyageurs*, who with strokes forty to fifty to the minute tirelessly drove their canoes — sometimes singly, sometimes in brigades — towards the west at rates up to six or seven miles an hour.

It occurred to me that it would be worth while to build a replica of one of those great canoes while it was still possible to get men and material for its construction. In 1955 I suggested to Dr. F. J. Alcock and Dr. Marius Barbeau of the National Museum of Canada that such a canoe be constructed as a joint project by the museum and myself. They agreed with enthusiasm, and the details of the undertaking were left largely in my hands.

The first task was to get in touch with Hudson's Bay Company executives in Winnipeg and also with the Governor, Mr. W. J. Keswick, in London, for information on the subject. All were cordial and helpful. They suggested that master canoe builders might be found at Lansdowne House in remote northern Ontario and Manowan Post in far northern Quebec. Regretfully I had to abandon both of these leads. Lansdowne House is 240 miles and fifty-eight portages from the railway and Manowan Post is equally inaccessible.

Fortunately, officials of the Department of Lands and Forests of Ontario recommended Matt Bernard, a former chief of the small band of Algonkian Indians on the Golden Lake Reserve on the southern boundary of Algonquin Park. Matt, though in his eighties, had a long and outstanding record as a master builder of small canoes, and accepted the commission to build the *canot du maître* under instructions and to our specifications. This was quite satisfactory as Golden Lake, which is only 100 miles from Ottawa and fifty miles from my home, was accessible for frequent consultations and inspections.

Canoe bark of high quality is obtainable only from white or canoe birch trees of large size and top quality. To obtain enough presented a problem: the depredations of the bronze borer and birch dieback had destroyed all mature birch trees from an area covering many millions of acres in the Maritimes and Quebec.

During the winter of 1956-7 friendly and co-operative hardwood plants at Gatineau Mills and Waltham at my request sorted out a few score large smooth-barked white birch logs from many thousands of winter-cut birch logs being put in storage piles. Our Indian friends advised us that if logs were cut "in the frost", they would peel perfectly the following spring. This did not prove to be the case. When Bernard went to the plants in the early May of 1957, the bark would not peel, so no usable bark resulted. This was a serious set-back; if our project was to be completed as planned by the fall of 1957, prompt and decisive action was necessary. Taking a leaf from the old canoe-makers' book of 150 years ago, we "took to the woods" to "search out and make bark". This involved travelling 1,000 miles by jeep and many miles on foot in Algonquin Park and Temagami Forest Reserve. Much scouting was done by lumber company personnel to locate and mark suitable trees.

The method of peeling bark from selected

Matt Bernard forming and sewing the bow of the canoe with spruce roots.

trees is to cut a one-inch circle around the bole just above the swell of the roots and a similar one-inch circle at the top of good bark, then cut a vertical line from top to bottom. If conditions are right and the sap is rising (about 15 May in southern Ontario and 1st June in the Temagami area), the bark almost explodes and the tree peels without any wedges. Then all one has to do is roll up the bark and pack it out to the nearest road. After a few weeks of intensive effort, 1,000 square feet of top quality bark was collected at Golden Lake, sufficient to allow for selection and sorting according to thickness and quality. (Contrary to general belief, top quality green bark is almost as tough as bull hide, if well supported on a frame; in fact, good bark or rind looks not unlike sole leather.)

In preparation for construction of the canoe, Bernard first built an all-weather canoe shed, fifty by sixteen feet, open at both sides. He then collected a quantity of watape — spruce roots, carefully selected, severed and pulled out of swampy ground and stored under water in rough coils and, when required, scraped free of bark. These roots are slightly larger than a lead pencil and when split in two make very strong and pliable sewing material in lengths of ten to fifteen feet.

Next, a birch bark blanket was carefully made, about forty feet long and twelve feet wide, sewn together with overlapping seams, each piece selected for quality and thickness and in accordance with its function and appearance in the completed canoe. For example, the two longest and best pieces sewn together formed the centre and bottom of the canoe (which has no inside or outside keel). Heavy field stones were used to keep the birch bark blanket flat on the carefully smoothed and prepared sand floor, because of its natural tendency to curl. The rough outside bark was uppermost; the smooth inner bark, which was to be the outside of the canoe, was against the ground.

A rough one-inch wooden form or template, approximately the shape of the inside of the canoe, was fastened together and superimposed in correct position. The sides of the bark blanket were bent upwards around this template to roughly form the sides of the future canoe and were held in place by stakes driven into the ground.

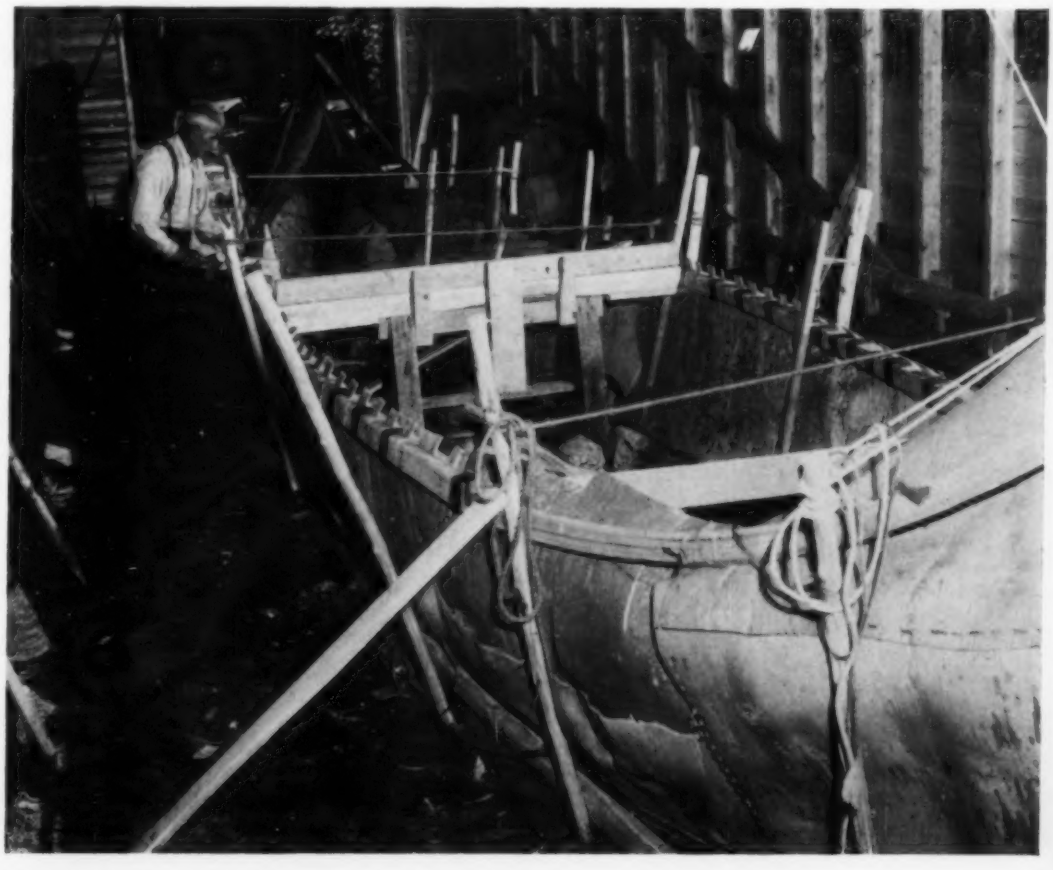
The next step, probably the most important, was the designing and constructing of the curved shape of the gunwales. On the shaped curve and strength of these, held together by the strong thwarts, depend the beauty and lines of the finished canoe. With the addition of the ribs and end frames, they form the flexible framework on which the very safety of the craft depends. When gunwales are formed and in position, the blanket is folded up around the wooden template and side pieces of bark are inserted between the two pieces of the gunwales. The design is a wonderful creation of the prehistoric ancestors of the North American Indians. While its origin is lost in the mists of antiquity, one cannot imagine any possible improvement on the design or any construction better suited to primitive travel for hunting and survival. These light canoes, made in many sizes for different purposes and easily carried in a land where thousands of lakes and streams provided water highways, were eminently suited to the use of these people.

In this case, the gunwales on each side were made of two pieces of high quality white ash, cut from a selected tree by Bernard and shaped by hand, with the side bark of the canoe between them and held as in a vice by alternate bindings of watape and rawhide every few inches, and with a groove inside the bark into which the tapered ends of each rib later could be inserted. The ends of the double gunwales were curved skilfully and bound to suitable ash supports to form the beautifully curved bow and stern.

Thwarts, seven in all, were formed of two-inch white ash and, lashed securely to the gunwales, held the whole framework together, one having a three-inch hole for a mast. Inside seams were made watertight with spruce gum collected in the forest and skilfully tempered by heating and adding the right amount of grease to make it firm, but not soft, in the sun. The lining was made of thin flat cedar pieces, hand smoothed with the ubiquitous crooked knife used with great skill by Indian craftsmen in place of plane, drawknife or spokeshave.

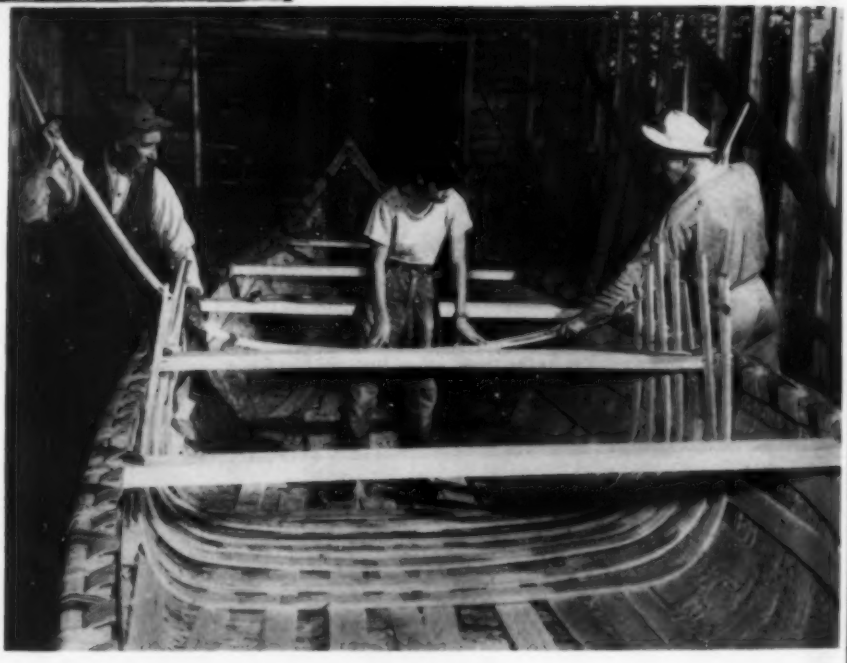
The ribs, made of cedar, were about three inches wide and five-eighths of an inch thick, hand worked and steamed in a hot water tank. Steaming over a form was required to bend them to conform to the different curves, from the very sharp ones at bow and stern to the easy ones amidships. These ribs, which form the flooring and sides of the canoe, are first inserted in the grooves of the gunwales at an angle. When gradually and skilfully driven home into a vertical position, they act as an ingenious stretcher and tighten the bark covering by pressing the thin lining strips to the limit, thus smoothing out any lumps or bumps. They also help distribute any stresses or strains from wind and waves to the strong but elastic basket-like framework. Thus, these apparently frail craft were able to make the "long traverse" of 150 miles or more of open water across Lake Superior from Sault Ste. Marie to Fort William, and under sail or paddle could ride out sudden storms which much heavier clinker-built boats would not have faced.

All outside seams were gummed to make them watertight. Then seven swinging seats of hand-hewn two-by-eight spruce planks were hung from the gunwales about ten inches below the thwarts. On these in the old days sat the fourteen middlemen (seven on each side), who with the two boutes — the bowman who was guide and had full charge of the canoe crew



A close-up view of the canoe under construction.

Binding the bark between the two pieces of white ash forming the gunwales.



Bending and inserting the cedar ribs which form the floor of the canoe.

and contents at all times, and the steersman — made up the full crew of sixteen. Such a canoe often also carried 4,000 pounds of baggage and provisions, as well as three or four important *bourgeois* and possibly one of their wives, who all sat on special fur-covered seats near the centre.

The final step was to decorate the canoe — both sides, bow and stern and under the gunwales — with suitable colourful designs painted in bright colours. Paddles of white spruce, nine feet long, were made for the boutes, and paddles seven feet six inches long for the middlemen. The over-all length of the canoe measured thirty-six feet eight inches, its width seventy-two inches inside the gunwales at centre, and its depth thirty-three inches at the centre.

The canoe was completed 28 September 1957, all constructed in the fashion of 1810 without a nail or bit of metal or modern material. Without any formality, it was launched on Golden Lake and given a short cruise to test its seaworthiness, manned by a motley crew of interested well-wishers, with Matt Bernard as bowman and his son, Mike, as steersman. Afterward it was carefully beached, loaded on a truck, and

Mike Bernard gumming the inside of the canoe.

delivered safely the same afternoon to Ottawa, where it was put in storage. Some time this year it will be officially accepted and placed on public display in the National Museum as a permanent exhibit to show present and future generations of Canadians one of the most important means of travel long before railways, highways or aeroplanes were in use here. Perhaps through it, too, our children may learn something of the epic story of the early fur traders and the debt we owe to these men who opened up this first great highway, explored and conquered and held half the continent for the British Empire, and at one time occupied for the British Crown the great States of Washington and Oregon.

Bringing this joint project to a successful conclusion has been a matter of satisfaction to all concerned. I am convinced that Matt Bernard has produced a worthy replica of the original *canot du maître* or Montreal canoe, a little heavier perhaps than the 1810 model, but one which I am confident could cross the great bays of Lake Superior with safety, if in these lesser times one could muster a crew hardy enough to make the trip and stay the course.

* * *

Acknowledgement

I would like to extend thanks to all who helped the project along the way. I would mention officials of the National Museum and Public Archives of Canada, the Hudson's Bay Company, the Department of Indian Affairs, the Department of Lands and Forests of Ontario, lumber and pulp company personnel, and many others, and I would specifically name Matt Bernard, without whose skill and master craftsmanship acquired not only during his own life-time but also inherited from his Ojibway ancestors, this canoe would never have been completed in its present form. He is undoubtedly one of the very few master canoe builders left in Canada today and has produced not only a beautiful canoe but a museum piece of permanent value.

The trial run on Golden Lake to test the canoe's seaworthiness. It is propelled by a crew of amateur canoemen, with Matt Bernard as bowman and his son as steersman.

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W. E. Greening (*The Richelieu—Historic Water-way of Eastern Canada*) is a freelance Montreal author who specializes in articles dealing with the history and culture of Quebec. Several of his articles have been published in the Journal.

* * *

W. V. Crich (*Some Wild Animals of Canada—Part II*), a teacher by profession, has earned an enviable reputation as a photographer. Mr. Crich's deep interest in natural history has led to many fine photographs of animals, birds and flowers.

* * *

R. E. English (*Agriculture in Alberta*) is Agricultural Statistician in the Agricultural Extension Service of Alberta's Department of Agriculture. Mr. English has resided for many years in the province and takes a keen interest in its history, in which the development of agriculture has played a significant part.

* * *

D. A. Gillies (*Canot du Maître or Montreal Canoe*) had a very personal interest in the replica of the Montreal canoe made for the National Museum, for he helped to finance the project and to find a master canoe-builder. He is president of Gillies Brothers and Company Limited of Braeside, Ontario.

Summer School Activities

Information has been received from the Geographical Association of Great Britain that arrangements have been made to hold a summer school for field work in Scotland for teachers of geography, under the direction of Professor J. Wreford Watson, University of Edinburgh, and Professor D. L. Linton, University of Sheffield. The date will be from 26 July to August 6, and the centre will be at Glenesk, near Brechin, Angus. Excursions to include the Grampian Highlands will be made by coach and on foot.

A summer school will also be held between 14 and 28 August, on the geography of the middle Rhineland, with two centres at Kettwig/Ruhr and Mayen/Eifel. The school will be under the experienced leadership of Mr. T. H. Elkins, M.A. and Mr. E. M. Yates, M.A., both lecturers in

(*Continued on page IX*)

THE TRAVEL CORNER

One of the natural wonders of the world—the Giant's Causeway, near Portrush, Northern Ireland.

U.K. Information Office

Northern Ireland

A great many people who have never seen the Mountains of Mourne at least know of them through the song, just as they know of Derry Dale through the nostalgic *Londonderry Air*. The heather-misted slopes of "The Mournes" sweeping down to the sea are a fitting introduction to the charms of Northern Ireland, for there is no more beautiful mountain range in the land. However, this country has much besides hills and dales to show its visitors. There is wit and melody of speech and song. There are also ships, thatch-roofed cottages, linens, ancient ruins, and possibly a few leprechauns. And there are many other things. Each newcomer makes his own list.

The most westerly of the six counties, Fermanagh, is the lakeland of Northern Ireland. In a wide picturesque valley lies its largest lake, Lough Erne, whose fifty-mile length is dotted with islands. On one of these, near the centre of the lake, stands the historic town of Enniskillen, which is joined to the mainland by three bridges. In this district the scenery is magnificent and the fishing above reproach. Among the many interesting things to be seen are some very old cairns, intricate systems of underground caves and caverns (best visited in the company of a guide), storied ruins and imposing buildings. From Belmore Mountain there is a breath-taking panorama of all of County Fermanagh, parts of six other counties, and the Atlantic Ocean. Near Enniskillen, also, are two National Trust properties worth seeing — *Castlecoole*, one of the most outstanding eighteenth century mansions in the country, and *Florencecourt* on the estate of the Earl of Enniskillen.

Belfast, the capital of Northern Ireland, is a very important shipbuilding centre and the hub of the Irish linen industry. Probably the pleasantest way of exploring the attractive outlying area is by automobile. A favourite trip for a single day's driving is that east and south around the lovely fertile Ards Peninsula, which has a very agreeable diversity of coastal scenery. Part of the time one is alongside Strangford Lough. This is particularly appealing in the springtime, when a variety of wild flowers deck its grassy shores.

Setting out from Belfast, the first stop might be at Stormont to see the

(Continued on page VII)

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(*Continued from page VI*)

country's fine Parliament Buildings, constructed in the Greek classical fashion and standing in a beautiful park. Nearby is Stormont Castle, official residence of the Prime Minister of Northern Ireland. From there one can continue by way of the old village of Dundonald to Newtownards, a linen centre which is also noted for its cultivation of roses. A short distance north-east of the town are the ruins of Movilla Abbey, founded in 550 by St. Finian. On a hill to the south-west stands Scrabo Tower, a memorial erected to the third Marquis of Londonderry in the mid-eighteenth century. From its steps there is a very fine view of the coastline and the little islands in Strangford Lough. *En route* to Greyabbey the coast road passes Mountstewart House, one of the National Trust properties, which is open to the public on certain days of the week between May and October. The public is also admitted to the private grounds on the outskirts of Greyabbey where stand the pink sandstone ruins of the historic twelfth century abbey of the same name. It is about twelve miles from here to Portaferry, the most southerly town on the peninsula. The road loops back toward Belfast by way of Cloughey, Portavogie, Ballyhalbert, Ballywater, Millisle and the popular holiday resort of Donaghadee. From there one proceeds through Groomsport to Bangor, the famous seaside resort, where every July the annual regatta of the Royal Ulster Yacht Club takes place. A few more miles complete the circuit to Belfast.

In 1956 the first Ulster Week was held in Belfast. Last year, under the new name of the Ulster Festival, it extended to fifteen provincial towns and the program included exhibits of painting and sculpture, concerts, and plays. In May of this year the festival is being repeated. In Belfast and various other centres there will be pageantry and special events which visitors will enjoy. Prospective tourists can obtain information about Northern Ireland and the Ulster Festival from the British Travel Centre, 90 Adelaide Street West, Toronto. From the same source can be obtained copies of the latest edition of *Hotels in the British Isles*, which contains reliable data about accommodation and rates in Northern Ireland and Great Britain.

From late May through September, the Ulster Transport Authority will be operating conducted motor coach tours. These range from a four-day tour of Northern Ireland to a ten-day tour of all Ireland. The rate—less than $10 a day—includes meals, accommodation, transportation and gratuities. There is also a special seven-day tour with accommodation at the Laharna Hotel in Larne at a lower daily rate. Further information about these tours may be obtained from travel agents and the North American offices of Irish Railways.

Vancouver International Festival

Vancouver's festival of the arts, which is now known as the Vancouver International Festival, will be held 19 July-16 August. The program includes opera, theatre, film festivals, symphonies, and art displays. Among the artists taking part are George London, Bruno Walter, William Steinberg, Marcel Marceau, Dr. Gunther Rennert, Joan Sutherland and Douglas Seale. A brochure describing the festival may be obtained from the Vancouver Festival Society, Rooms Seven and Eight, Hotel Vancouver, Vancouver, B.C.

Safaris in Africa

Air France, in co-operation with Sita World Travel Incorporated, is offering safaris in French West Africa, French Equatorial Africa, the Belgian Congo, British East Africa, the Union of South Africa and Rhodesia. The excursions last thirty-two days. Rates from New York are $2,477 or $2,513, depending on the itinerary chosen. Accommodation is provided at fine hotels and guest houses. All meals are included except in Paris, where only breakfast is provided. A brochure containing outlines of itineraries, a map and other information may be obtained through Air France offices.

Study Abroad

One of the most comprehensive publications concerning travel and study is UNESCO's *Study Abroad*, now in its ninth edition. In it can be found information about over 75,000 different opportunities of obtaining financial assistance for international educational travel. The fellowships and scholarships listed are awarded by governments, foundations, universities and various institutions. They cover almost every field of knowledge. The book itself is trilingual, with sections in English, French and Spanish. It is bound in paper, contains 836 pages, and costs $2.5[illegible]. Further information may be obtained from UNESCO, 19 avenue Kleber, Paris 16, France.

THE ROSEFISH is found in abundance off Canada's east coast. The Department of Fisheries reports that exploratory fishing by the Fisheries Research Board of Canada indicates still greater stocks to the north.

A rose is a bream is a perch—

THE ROSEFISH, variously called Red Bream and Ocean Perch, was, until recent years, of little or no commercial or food value. Turning point in its importance came with advancements in fish freezing and handling. The rosefish were automatically scaled and filleted, then quick frozen and sent to market as Ocean Perch. Their mild flavour and relatively low price won them instant popularity.

At the same time the growth of *otter trawling* with huge, open-mouthed nets made the catching of rosefish in large quantities a commercial possibility.

The Fisheries Research Board of Canada, the Department's scientific arm, has discovered many of the important grounds which are being fished today and others still untapped. The rosefish typifies the role—one of many—that the Department plays in developing Canada's vast and valuable fish resources.

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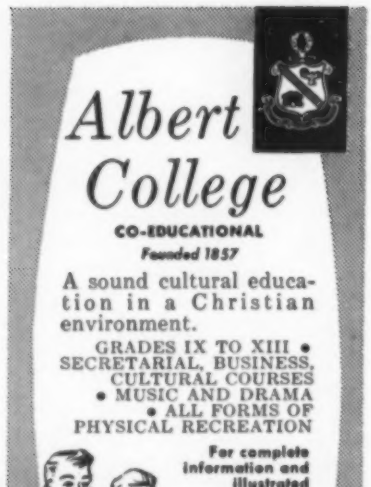
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STAFF

Professors Finley, Hammond and Robinson of the University faculty; visiting lecturer John R. Randall of The Ohio State University.

INFORMATION

For further information write Director of Summer Session, University of Wisconsin, Madison 6, Wisconsin, U.S.A.

on the shores of Lake Mendota

(*Continued from page V*)

geography at King's College, University of London. Chartered air transport will be available for registered students.

In Brussels there will be an International Geographical Week to be held 4-11 August, with a programme of lectures on Belgium and the Belgian Congo, guided visits to the Brussels Fair Exhibition and field excursions.

Further information can be obtained by writing to: The Geographical Association, c/o The Park Branch Library, Duke Street, Sheffield 2, England.

AMONGST THE NEW BOOKS

London Correspondence Inward From Eden Colvile, 1849-1852

Edited by E. E. Rich assisted by A. M. Johnson

(The Hudson's Bay Record Society)

This Volume XIX of The Hudson's Bay Record Society's handsome and scholarly series devoted to early papers from the development of Canada's Great West, is concerned with the vitally important period of transition that came about at Red River Settlement, starting in 1844 and continuing for over a decade thereafter. It appears that the social changes then consummated were largely the achievement of the writer of the letters published in this book.

An exceedingly thorough introduction of just over 100 pages by Professor Morton puts us, with remarkable clarity and precision, "into the picture" of the Red River country and society of that day and follows through to their conclusion the series of events that live in Colvile's lines to company officials. These constitute the body of the present work, occupying some 170 pages supplemented by an appendix of almost 100 more which presents "Eden Colvile's Letters to Sir George Simpson, 1849-1852".

Even a cursory perusal of this book by a reader interested in its theme whets the appetite to learn all that is so splendidly offered on a critical phase in the history of what were to become the city of Winnipeg and Canada's Prairie Provinces. Had Colvile been less patient and adroit in dealing with the touchy situation reviewed in these many reports and accounts to Hudson's Bay Company officials, it is quite likely that Manitoba might have fallen to pieces socially before aggressive American elements just beyond Pembina to the south—much as Oregon was wrested from British control shortly before the time when our present texts open. While it may be true that Eden Colvile failed in his earlier efforts at Beauharnois as Professor Morton implies, one tends to doubt that "experience and the habit of command" would be enough to make up for only "fair ability' in handling business matters; in reality, Colvile could hardly have dealt more easily and effectively with the extremely difficult problems that confronted him upon his arrival at Red River in August 1850. His letters are always direct and to the point, yet delightfully spiced with humour or punctuated with shrewd observations on persons and affairs. Both he and his wife, we learn, could win the esteem and trust of the most bitter, disillusioned elements. To indicate but one facet of the man's many accomplishments, this reviewer has seen few narratives more concise or fascinating than his report of October 21st, 1852 to the Governor and officers of the Hudson's Bay Company: here is related (in about two pages of large print), with all necessary and pertinent observations, just how he went through the North West and the Rockies down to the mouth of the Fraser, the various routes then usable for travel in that region, and the difficulties of his return journey up the Columbia compared to the advantages of following better and shorter routes on British soil. In brief, it gives us something of that pithy pungent approach to practical considerations that characterizes empire builders.

This notable book concludes with a "select bibliography" of seven pages and an eighteen-page index which appears to be as complete in its way as the introduction. The Hudson's Bay Record Society is to be congratulated upon another superlative production. A. E. H. PETRIE.

Mr. A. E. H. Petrie is assistant head of the Prints and Drawings Division of the Public Archives of Canada.

* * *

Around the World in Wanderer III

by Eric Hiscock

(Oxford University Press, Toronto. $5.00)

It is always pleasant to read of human endeavour that has been crowned with success in the face of many hazards. The author of this book and his wife set out to sail round the world in their eight-ton yacht, *Wanderer III*, in order to

prove their own seamanship and judgement, to their own satisfaction and also to see something of the world and its people. When, after nearly three years they tied up safely again at the spot from which they started, Yarmouth, Isle of Wight, they rejoiced that the long voyage had been accomplished without mishap, and the reader rejoices with them. What adds special interest to this story is the unforeseen hazards against which seamanship could not protect them. When they planned to seek fresh water on the Galapagos Islands they were warned in time by a friendly official at Panama that Ecuadorean gunboats had been known to impound vessels such as theirs and take off the crew. This inhibition gave them the longest run on their trip, 4,000 miles of Pacific Ocean to the Marquesas Islands.

On another occasion while refitting at Durban, they encountered a rule that no yacht of less than thirty-five feet was considered seaworthy enough to be permitted to leave the harbour. *Wanderer III* was but thirty feet in length and it was only the courtesy of the captain of the port that made it possible for them to put to sea again. It was man-made regulations rather than the perils of the sea that they dreaded.

Despite the fact that coast dwellers usually insisted that their particular strip of coast was the most dangerous in the world, Mr. and Mrs. Hiscock literally took it all in their stride. Their confidence in their little craft was well justified when she rode out the worst that the Atlantic, Pacific, or Indian Oceans could do, and it is good to know that the sound English workmanship which went into the *Wanderer's* being, was duly recognized when she was placed on show in the second National Boat Show at Olympia, in 1955. She had no overhaul or refit, but was shown exactly as she was when she carried her owners safely home after 32,000 miles at sea. It is a happy story with a happy ending. The illustrations, maps, glossary and index all add to one's pleasure in reading. SYLVIA SEELEY

* * *

An Introduction to World Geography

Edited by George Kish

(Prentice-Hall, Inc., Englewood Cliffs, N.J., $7.95)

The purpose of this book is to "explain the fabric of the world" by taking a regional approach — the region being considered "as an expression of the closely interwoven

(*Continued on page XI*)

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(*Continued from page X*)

physical and cultural aspects of the landscape". This viewpoint is not particularly new but what is refreshing is to find that the regions are "fitted within boundaries that attempt to do justice to the realities of to-day—continents in some cases, political entities in others, realms held together by a major common denominator in still others". The fact that the division of the world is not made according to a uniform "system" should, to say the least, extend its usefulness beyond the confines of the purely academic geographer. Thus there are separate chapters on countries like China, Japan and Australia while the Near East, for example, is treated as an entity without subdivision into political units.

Canadian attention will undoubtedly focus, to some extent on Part I of the book which deals with Anglo-America and Part IX which deals with the Polar Lands. The first of these sections begins with a general chapter dealing with the landforms, climate, vegetation, settlement and population of Anglo-America. This is a useful summary if one overlooks the startling statement that "the year 1867 marks the final chapter in the territorial expansion of the states of Anglo-America within their own continent". The three colonies which in 1867 federated to form the first dominion covered a very small part of what is now Canada, which indeed did not cease to expand territorially until 1949! The chapter on Canada itself is divided primarily "along the individual provincial boundaries" within which secondary divisions are made along significant physical boundaries. (This, by the way, is unlike the treatment of the United States of America, which is divided into the six major regions "as they developed during its history, and to the facts of physical, economic and human geography".)

In this day and age, the inclusion of a chapter on the Polar Lands is welcome. Fortunately the author, unlike so many polar "experts", confined his attention to those parts of the world with a true arctic climate (excluding high mountains). There is occasionally some confusion, however, when insufficient distinction is made between the Arctic and Antarctic. Thus Part B of the chapter, headed "Climate of the Arctic" actually includes both polar areas, as does the subdivision entitled "The Arctic Ocean and Sea Ice".

The bibliography at the end of the book is interesting because for each chapter two lists of reference are given. The first is the familiar one of important reference books dealing with the region. The second, however, contains novels, works of history, sociology, economics and anthropology. They were selected "because they cast a light on the land with which they deal, on the people, their ways of living, their customs and their habits." Thus the Canadian list includes *Maria Chapdelaine*, *The Golden Dog*, *Two Solitudes*, and so on. But the only reference book on Canadian geography which is listed was published in 1950 and is a high school text at that. Similarly, the "technical references" on the Polar Lands completely gloss over the many advances of the last decade as the list for this section includes only one small item published after 1947.

The book is clearly illustrated, particularly with photographs. There are perhaps too few maps, although this is not serious as geography cannot be studied properly without the constant use of an atlas. But this reviewer did find it strikingly odd that none of the maps had either a scale or any indication of the latitude or longitude of the area being dealt with.

N. L. NICHOLSON.

Dr. Norman Nicholson is director of the Geagraphical Branch of the Department of Mines and Technical Surveys at Ottawa and is a member of the Committee on land utilization of the Conservation Council of Ontario.

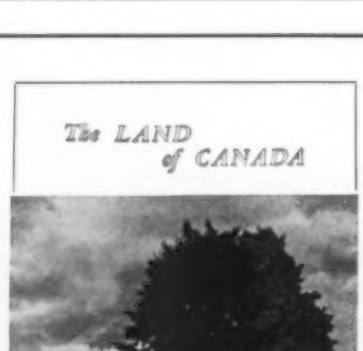
* * *

City in the Sand
by Mary Chubb
(Gefforey Bles, Limited,
Don Mills. $5.00)

Mary Chubb has taken on a considerable task in writing about a "dig" which was also described some ten years before by Seton Lloyd and which has a strangely retrospective flavour — "Foundations in the Dust", to quote only one relevance between the two books. Lloyd's is erudite, whereas that by Miss Chubb can never pretend to be, nor should it be made into a study of archaeology.

There is much to be gained, however, in the discovery that an archaeological expedition has more housekeepers than archaeologists — some three hundred diggers were employed at Tell Asmar, not very far north-east of Baghdad, and of them nearly five were experts — I say "nearly" five, because Miss Chubb is sufficiently honest to state that she did not know much about the science until she learned enough about bookkeeping to handle that part of her job in her spare time.

I have read much about archaeology in Mesopotamia by way of



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Claud as Rich, who first started his efforts about 1820, then Sir Henry Rawlin son, Buckingham, Ker Porter and Ai sworth, and then the very great Auste Henry Layard and the still more revered Sir Leonard Woolley, the one who first discovered Ur of the Chaldees. There have been others, including Schliemann and Ceram, both Germans, but their preoccupations were mostly with Cretan, Greek and Egyptian finds.

I have never understood why an archaeologist should give up an enthralling career, as did my two friends, Mr. and Mrs. C. C. Cremin. He was formerly an archaeologist and his charming wife was a biologist with an affinity for Carbon 12. Yet they are now both in London, where he represents Eire as High Commissioner to the United Kingdom. However, in spite of devotion to new duties, they do not forget the joys of archaeological research.

The reason I mention them is that Miss Chubb seems to have gone the other way around — she started as a stenographer, and fortuitously got herself engaged on a field expedition, first to Egypt, and then to the Mesopotamian area of which she now writes.

I found her homey little stories arresting, as of the time when Jon, the six-year-old son of the leader of the expedition, got so feverish in the middle of a torrential rain that one of the Iraqui boys rode a hundred miles to Baghdad and back in order to get instructions from a doctor before the latter himself could come. The poor fourteen-year-old mare on which he rode was so exhausted that she nearly died, but the next day was so elated at Jon's recovery that she lived through her moment of regret!

This book shows the lighter side of archaeological life, and the strange mixture of interests, human and scientific, modern and ancient that makes up the daily round of work at the camp-site.

JAMES P. MANION

Mr. James P. Manion is assistant director of the Economic Planning and Development Branch of the Trade Commissioners Service.

* * *

The Grenville Problem

Royal Society of Canada Special Publication, No. 1

(University of Toronto Press. $3.95)

This volume consists of a preface by the chairman of the editorial committee and seven papers dealing with the problems of that important part of the Canadian Shield known as the Grenville subprovince of Quebec, Ontario and New York State. These papers were selected from thirteen presented in a symposium at the annual meeting of the Royal Society, Section IV, at Toronto in June, 1955. Lists of references and brief summaries of discussions are included.

The papers bring out the many problems the region presents and the wide disagreement among workers on some of these points. In regard to rock types and geographical extension, what is exactly meant by the term "Grenville"? Should the region be regarded as a Precambrian province or subprovince? Are its rocks of Archaean or Proterozoic age? Do they include more than one major series? What is the relation to adjacent subprovinces and what is the explanation of the so-called "Grenville Front", the north-west border of the region? These and problems of intrusion, orogeny, and granitization come under discussion.

The following are the seven papers:

(1) "The Grenville Region of Quebec" by F. Fitz Osborne, Faculty of Science, Laval University, who in outlining the history of geological investigation of the region concludes that great progress has been made and feels that the term "Grenville Series" should be retained.

(2) "The Grenville of New Quebec" by W. G. Robinson, Frobisher Limited, Noranda, Province of Quebec. This paper concerns the easterly extension of the Grenville region into northern Quebec and Labrador. It is concluded that the belt probably continues to the Labrador coast.

(3) "The Grenville Region of Ontario" by D. F. Hewitt, Ontario Department of Mines, a summary of the work and particularly the recent investigations that have been carried out in this region.

(4) "Structures in the Clare River Syncline: A Demonstration of Granitization" by J. W. Ambrose of Queen's University, and C. A. Burns, Consulting Mining Geologist. This paper describes the succession and structure in Grenville gneisses northward of Tweed. One unconformable contact is believed to be established, a second may be present, three periods of volcanism are recognized and evidence is given for the conclusion that the emplacement of granitic gneisses was by metasomatic replacement.

(5) "The Bearing of Age Determinations on the Relation between the Keewatin and Grenville Provinces" by H. A. Shillibeer, Gulf Research and Development Corporation, Pittsburg, and G. L. Cumming, British American Oil Company, Calgary, both formerly of the Geophysical Laboratory, University of Toronto. Of over 140 age determinations on

(Continued on page XIII)

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(*Continued from page XII*)

rocks and minerals from the Keewatin and Grenville provinces listed in this paper, about one hundred are from the latter province. Those from the former province indicate that the major orogenic activity in the Keewatin region took place between 2,000 and 2,500 million years ago. The granitic rocks and pegmatites in the Grenville region show ages between 800 and 1,350 million years. The conclusion is reached that the Keewatin and Grenville provinces are distinct orogenic units which are unrelated to each other.

(6) "Apropos of the Grenville" by A. E. Engel, California Institute of Technology, Pasadena, California. Correlations and conceptions of the Grenville series are discussed and the suggestion is made that detailed stratigraphic and structural studies and the use of group names in local areas should eventually provide answers to many problems that still remain unsolved.

(7) "Correlation of Rigid Units, Types of Folds and Lination in a Grenville Belt" by A. F. Buddington, Princeton University. A summary of the results of recent detailed structural studies of the Precambrian rocks of the Adirondacks, New York, and of the New Jersey Highlands.

The volume is a "must" for all those interested in Precambrian geology.

F. J. ALCOCK

Dr. F. J. Alcock is lecturer on geology at Carleton University. Until recently he was Chief Curator at the National Museum of Canada.

* * *

Arctic Trader

by Charles Madsen with John Scott Douglas

(Dodd Mead and Company, Toronto. $4.50)

This is a document of some value in that it records, presumably in his own words, the reminiscences of a man who went to Nome in the gold rush year of 1902 and remained to become a trader, hunter, fisherman, and guide in the rough and colourful Alaska of the period before the First World War. Apparently not a man who took easily to the pen, Mr. Madsen was persuaded by his ingenious family to confide to a tape-recorder the story of his experiences during this period, and of the adventures that brought him to Alaska from his native Denmark by way of a sailor's erratic wanderings and a half-hearted attempt to become a cowboy. The results were shaped into the present form by Mr. Douglas after the death of Mr. Madsen, with assistance from his son "in supplying missing details and in bridging . . . gaps" (page 273). We are not told how much editing and gap-bridging was done by Mr. Douglas, but the result makes pleasant and interesting reading and has the ring of authenticity.

The story is a little disjointed, but this is in part the result of the author's restless and varied way of life. The greater part of the book, as its name suggests, deals with trading activities among the Alaskan and more especially the Siberian natives. Mr. Madsen learned to speak not only Alaskan Eskimo (his first wife was an Eskimo) but also Siberian Eskimo and Chukchi, and he gives an interesting account of the lives and customs of these natives, whose very existence at that period was threatened by the practices of some of his less scrupulous colleagues. Of himself and his kind he says with engaging frankness " . . . we tried to deal fairly with the natives and whenever possible to remain within the law" (page 96), and there is little doubt that this is true. It is open to argument whether bartering a twenty-dollar phonograph for a two-hundred-dollar bear skin really constitutes fair dealing, but there are many factors of relative value involved and it would be wrong to condemn the individual trader. Most of the trade goods were of more practical value to the natives.

Some interesting and colourful characters are to be found in this book, including Charlie Gordon, Oxford undergraduate and heir to an English title, who was shanghaied aboard a ship bound for Japan and ended up in Alaska where he married an Eskimo and continued to live a seaman's life; Alec McLean, his piratical skipper; Casang Charlie, the English-speaking Chukchi who had served aboard a whaler and who taught his language to Mr. Madsen; and Gus Bolch, who found an ingenious way of hurling public abuse at a judge whom he particularly disliked without getting into trouble with the law.

The book would have been improved by a map, and by more careful proof-reading to eliminate the far too numerous typographical errors. It is perhaps churlish of a Canadian reader to carp at a reference to St. John's, New Brunswick. But surely it is one of the duties of a publisher to ensure against duplication of titles? Many people will confuse this book with the one of the same name by P. H. Godsell of the Hudson's Bay Company, and it is too interesting and entertaining a book to share a title with any other.

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